THE METAL INDUSTRY
WITH WHICH ARE INCORPORATED
THE ALUMINUM WORLD, THE BRASS FOUNDER AND FINISHER AND ELECTRO-PLATERS REVIEW
A TRADE JOURNAL RELATING TO THE NON-FERROUS METALS AND ALLOYS.

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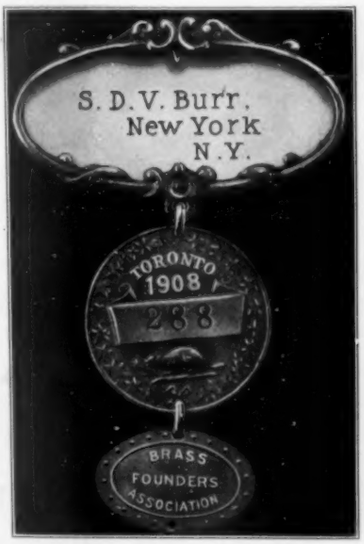
AMERICAN BRASS FOUNDERS' ASSOCIATION

Convention at Toronto, Canada, June 8-12, 1908.

With 160 members, and just starting on its second year, with a convention just closed at which 11 papers and most valuable discussion, were presented; with an attendance at one meeting of 67 (this it must be remembered was at a time when there were great attractions outside that meeting); and in general with a generous and hearty participation in its sturdy growth—this is the history, as far as it has been made, of the American Brass Founders' Association. In connection with the older and of course larger associations, the Brass Association took its appropriate part in the proceedings that formally opened the convention.



CONVENTION BADGE.

On Tuesday afternoon, Stanley G. Flagg, Jr., president of the American Foundrymen's Association, called the meeting of all the associations represented to order and introduced Mayor Oliver, of Toronto. The mayor welcomed the guests in most friendly fashion and mentioned that Canada intended to annex the United States as a whole if it could, but if it could not, then piecemeal; and this was one of the steps toward that annexation. Responses were made by President Flagg, President Charles J. Caley, of the American Brass Founders' Association; President E. H. Mumford, of the Foundry Supply Association, and President W. S. McQuillan, of the Associated Foundry Foremen.

Mr. Caley said in part: The places of our annual conventions are agreed upon one year in advance. The present convention will select the city where we shall meet next year. I well remember, at the convention last year in Philadelphia, the strong plea made for Toronto. We were told of the resources of your country; of the beauties and advantages of your city; and of the great and good people of Canada. We were invited to come and spy out the land for ourselves. We are here. Although we have been with you but a few days, we are convinced your representatives at Philadelphia told only half the story. We can see your great resources in men and material; we can see the great development that is sure to be yours. We are glad we came. We shall go home with a better appreciation of the Canadian and his country, and with the strong hope of better and closer relations in the future.

Secretary-Treasurer Moldenke, of the American Foundrymen's Association, read his report, which is given in part in our columns devoted to Associations and Societies.

SESSION OF THE A. B. F. A.

On Wednesday morning the American Brass Founders' Association assembled for their first annual convention. President Charles J. Caley, in his address, said in part:

This is the first time I have had the pleasure of presiding at your convention. As an association we are growing slowly but surely. Your secretary will report a membership of 155. Considering the business depression of the country following our organization, this is remarkable. Special attention is due our secretary for his very able assistance, and our vice-presidents, Mr. W. L. Abate, Mr. W. M. Corse and Mr. N. K. B. Patch. The business outlook is brighter than at any time since our organization, and I look for a large increase in membership during the coming year, though to accomplish it will require a lot of hard work on the part of your incoming officers.

The American Brass Founders' Association stands for the advancement of technical knowledge in the use of non-ferrous metals. Our purpose is purely educational—questions connected with labor or the regulating of prices are excluded. I make mention of these facts as I have been asked several times during the past year the object of our association. Further, we hope to accomplish much by the publication of papers read and discussed at our conventions by our scientific and practical members, though to be successful in our undertaking we must be fully supported by all those interested in the production and commercial use of metals. This can be accomplished in no better way than by joining our association and sending to our convention your manager, foundry superintendent or foreman, your chemist, mill superintendent or anyone connected with your plant who is interested in the founding and working of the non-ferrous metals or their various alloys. This association should be of special interest to the metallurgists, especially those engaged in reducing metals from the ore. The professors of chemistry in our numerous universities and colleges can do much to attract scientific men to our association

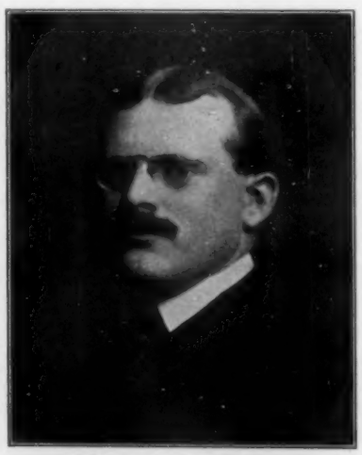
by bringing before our convention any metallurgical work done in their laboratories of an interesting character. I hope the incoming officers will do everything possible to induce scientific men to join us.

To the American Foundrymen's Association is due the credit for bringing metallurgy, as applied to the iron foundry, up to its present state of efficiency. The same is true of standardized drillings and standard methods for analysis, standard methods of testing cast iron and the adoption of standard specifications for the purchase of pig iron.

I hope the 1908 convention of the American Brass Founders' Association will not adjourn until a committee has been appointed to make like history for our association.

All mill men and foundrymen will recognize the importance of such a committee; all reliable smelters, refiners, metallurgists and chemists will, I believe, welcome a standard specification and the adoption of some standard method of analysis, so that copper, tin, lead, spelter and other non-ferrous metals may be purchased with the knowledge that they contain certain properties best suited for the work in hand.

President. Secretary. Treasurer.



CHARLES J. CALEY. W. M. CORSE. JOHN H. SHEELER.

OFFICERS OF THE AMERICAN BRASS FOUNDERS' ASSOCIATION.

The week of June 8th to 12th will pass into history as an honorable one for the Foundrymen of England, Canada and the United States. To-day there is being held in London, England, a meeting of a recently organized Institute of Metals, patterned somewhat after our own association.

The Supply Association is doing much to encourage and build up our different organizations through its magnificent exhibit of foundry equipment. This year for the first time we have an actual demonstration of the melting and pouring of metal.

Report of the Secretary. A portion of the report of the Secretary was as follows:

After the Philadelphia convention in May, 1907, it was announced that the charter membership list would be kept open until the beginning of the first fiscal year, July 1. Before that date 47 applications had been received. (The complete list of members will be found in our department of Associations and Societies.) In the early fall a circular was printed, explaining the object and scope of the association, and this letter was sent to 2,500 firms engaged in the metal industries throughout this country and Canada. The vice-presidents were supplied with the names and addresses of the firms in their respective districts, to whom the circular had been mailed, and were requested to follow up the circular by a personal letter to all who did not respond.

The issuance of the circular letter brought immediate results, though the responses were not as numerous as had been hoped for.

In April, 1908, a circular letter was sent to all members, calling attention to the approaching convention dates, and a copy of the proceedings of the Philadelphia meeting was enclosed.

On June 1, 1908, our total membership was 145, all of whom except 2 had paid their dues for the current year. These members are distributed as follows:

Canada	11
Connecticut	16
Delaware	2
Florida	1
Illinois	12
Iowa	1
Kentucky	1
Maryland	3
Massachusetts	6
Michigan	9
Minnesota	2
New Jersey	14
New York	29
Ohio	11
Pennsylvania	21
Rhode Island	1
Tennessee	1
West Virginia	2
Wisconsin	2
Total	145

Report of the Treasurer. This report showed an income of $725 and an expenditure of $480, leaving a balance in the treasury of $245.

AMENDING CONSTITUTION.

A committee of three was appointed by the chair to revise the constitution and report at the last session. The new constitution enlarged the power and scope of the organization. After being read by the secretary it was moved that typewritten copies be furnished all the members, and that any proposed changes be forwarded to the secretary.

At the Friday session Dr. Moldenke proposed that there be one publication for all the societies, the printing

and binding to be standard, and the expense to be shared pro rata, but each society to hold its identity.

OFFICERS ELECTED.

At this session the following officers were elected to serve during the year:

President, Charles J. Caley, General Manager Russell & Erwin Manufacturing Company, New Britain, Conn.

Secretary, W. M. Corse, Assistant Superintendent Detroit Lubricator Company, Detroit, Mich.

W. L. ABATE.

VICE-PRESIDENTS
A. B. F. A.

WALTER C. ALLEN.

J. N. GAMBLE.

N. K. B. PATCH.

WILLIAM R. WEBSTER.

Treasurer, John H. Sheeler, senior partner of the Sheeler-Hemsher Company, Philadelphia, Pa.

VICE-PRESIDENTS.

New England.

William R. Webster, General Superintendent of the Bridgeport Brass Company, Bridgeport, Conn.

Walter C. Allen, General Superintendent of the Yale and Towne Manufacturing Company, Stamford, Conn.

A. H. Warner, with E. Stebbins Manufacturing Co., Springfield, Mass.

New York and New Jersey.

W. L. Abate, General Superintendent of the Nathan Manufacturing Company, New York City.

Pennsylvania, Delaware, Maryland, District of Columbia.

Thomas Evans, treasurer Eynon-Evans Manufacturing Company, Philadelphia, Pa.

Michigan, Ohio, Indiana.

Charles B. Bohn, General Manager Allyne Brass Foundry Company, Detroit, Mich.

Illinois, Missouri, Kansas, Colorado, New Mexico, Nevada, California, except Chicago.

J. N. Gamble, General Superintendent Western Tube Company, Kewanee, Ill.

Wisconsin, Minnesota, Iowa, North Dakota, South Dakota, Idaho, Nebraska, Montana, Wyoming, Washington, Oregon, City of Chicago.

W. D. Allen, of the W. D. Allen Manufacturing Company.

Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Kentucky, Texas, Oklahoma.

J. Cessna Sharpe, Chattanooga, Tenn.

Quebec and the Maritime Provinces.

Alexander Mitchell, The Robert Mitchell Company, Montreal, Canada.

Ontario and Western Provinces.

N. K. B. Patch, Manager Lumen Bearing Company, Toronto Junction, Canada.

The first professional paper to be read, which we present below, was by Charles H. Proctor; this was read by the secretary in the absence of the author:

ELECTROCHEMICAL CLEANING BATHS AND THEIR APPLICATION TO COMMERCIAL USES.

In the art of electrodepositing metals, two conditions are absolutely necessary for successful results.

The first is an absolutely chemically clean metallic surface; the second, the proper composition of the depositing bath. With these two essential preliminaries duly in order, the results can never be in doubt.

To the methods of arriving at the former condition it is my desire to call your attention in this paper, and primarily to the cleansing of the metallic surface by the aid of the electric current. From the earliest introduction of the art of electroplating it has been the aim of the operator to produce a purely clean surface, realizing the fact that to produce a perfect union of the deposited metal upon the baser metal this was an absolute necessity. The methods of producing this desired result for many years were practically the same.

In the days of the chemical battery, before the dynamo became the prime factor in the electrodeposition of metals on a commercial scale, the manner of cleansing the surface of the baser metal was practically the same in every case. According to the earlier text books treating of the electroplating of metals, this was a somewhat costly operation. The methods then in vogue, if applied in these days of competition would often exceed in cost the commercial value of the articles plated.

In the years gone by so much care was exercised in cleaning the metallic surface that such metals as copper, bronze and brass, after being highly polished, were afterwards scoured by the aid of various substances, thereby producing a dull surface that was supposed to be a necessity, because the early operators were under the impression that the deposit would not stick to a polished surface. At the present time we know that it is just as easy to produce a successful deposit upon a polished surface as upon a surface that is unfinished. Therer is always one factor to be taken care of and that is oxidation. As oxygen is always present in the atmosphere, it will, with its well known affinity for most metals, oftentimes in the space of a few moments form an oxide upon the surface of the metal which is invisible to the eye and yet sufficient in some baths, like nickel, to prevent a true adhesion of the deposited metal.

This is the reason no doubt that the early operators obtained many unsuccessful deposits and deemed it necessary to scour the surface with pulverized bath brick, trent sand, pulverized pumice stone and many other abrasive substances, that were intended to produce the purely clean surface so much desired; and until a decade or more ago these same mthods were carried on.

Within the past few years a number of substances of a chemical nature have appeared upon the market and have met with gratifying success, due to the fact that a chemically clean surface could be procured without oxidation or deterioration of the polished surface.

Several years ago a surprise was introduced among the electrodepositors of metals, in the news that a well known manufacturer was cleansing his goods made of iron and steel by electricity, and for some time the minds of many platers were at work to know how this could be accomplished.

Finally came the light. It was announced that alkaline substances such as sodium carbonate, potassium carbonate, potassium hydroxide and sodium hydroxide in solution, in varying degrees of concentration and with small proportions of potassium cyanide added, would, with a sufficiently strong electric current of from 4 to 8 volts, and at temperature nearly boiling, develop sufficient hydrogen to remove entirely all organic substances from the surface of the metal, thereby leaving it chemically clean.

In October, 1905, the first article that ever appeared on the subject of electrochemical cleaning was published in the Metal Industry by the writer and from that time the use of this method has been constantly increasing, until at the present time very few large concerns, especially among those engaged in the manufacture of hardware, are without electrochemical cleaning baths, which have proved so successful in the cleansing of many articles at a great saving of labor.

This method has also brought into the market several new combinations which are sold under the name of Electro Chemical Cleaning Salts, and have given very satisfactory results.

The action of an electro-cleanser is similar to the action of an electroplating bath. The only difference as far as the development of gases is concerned, is that no metal being in solution and the anode being insoluble, no metal is deposited. But with a strong current a copious evolution of oxyhydrogen gas is developed upon the articles, which attacks the organic matter upon the surface, practically lifting it off and by rapid evolution of the gases carries it to the surface. The small quantity of potassium cyanide contained in solution absorbs the slight oxidation that might be upon the surface, and by the combined action produces a surface clean enough, after washing in clear water, for any deposits.

The arrangement of an electro-cleaning bath is very simple. Prepare a wrought iron tank of proportions best adapted to the amount of work to be cleansed. This should be heated with steam coils of iron. Across the top of the tank an insulated frame should be constructed. Upon this frame place three conducting poles, as on the regular plating bath. To the two outside poles the positive current should be carried direct. This can best be accomplished with at least ½" copper wire flexible cables. To the center pole the negative current is connected with cable of the same dimensions; no rheostats are necessary. The stonger the current the greater the evolution of gases and the quicker the cleansing operation is accomplished.

Although direct contact can be made with the positive current to the tank itself, in practice better results have been obtained with anodes of sheet iron not more than 6 inches wide and of a length in proportion to the depth of the tank.

The electro-cleaning solution should consist (for ordinary purposes) of 3 to 4 ozs. caustic potash to each gallon of water, and to every 100 gallons of solution 8 ozs. cyanide of potassium. This can be varied according to conditions. It is advisable to add at least ¼ lb. cyanide each week. Where the articles, such as iron or steel, contain much oil or grease upon the surface, the density of the solution can be increased. For articles of brass, copper or bronze that have been polished, use a solution of carbonate of soda in the proportion of 2 ozs. soda and ½ oz. caustic potash to each gallon of water, with the addition of 4 ozs. of cyanide to every 100 gallons of solution. If much organic matter is upon the surface of the articles to be cleansed, it is advisable where an air pressure can be obtained from an ordinary blower, to arrange a pipe so that the current of air can be deflected upon the surface of the solution, thus keeping the center of the solution clear of the insoluble substance that arises to the surface. When the cleanser is at rest, as much of this matter should be removed as possible.

It should be the aim of the operator to use the same

methods of avoiding all unnecessary contamination as he would in electrodepositing baths. It is obvious even to those who have not practiced this method of cleansing metallic articles that large quantities of work can be treated very rapidly, and this is the case especially where frames or racks are used in the plating operations. On account of the rapidity of operation and the efficiency of the bath, this method of cleansing should be a part of the labor saving devices used in all great commercial establishments engaged in the electroplating of metals.

The next paper was by Andrew M. Fairlie, secretary of the association, from which we take the following:

HOW TO USE YOUR MEMBERSHIP PRIVILEGES.

One year's experience as secretary of the American Brass Founders' Association convinces me that a few hints to our members on how to get the most for their money, as members of an educational organization such as ours, will not come amiss.

In the first place our members have the privilege of interchange of ideas through mutual correspondence among themselves. Henceforth this opportunity will be more available than it has been in the past, for each member will be provided with a list giving the names and addresses of fellow members. This list can be kept up to date by watching the association pages of the technical journals, which will contain the names and addresses of new members from month to month. Whether or not you know the man with whom you wish to discuss any knotty point, it is your privilege to write him, referring to the association, and such reference, you will find, will elicit a frank and cordial reply from any fellow member. His information will be yours, just as, were he the inquirer, yours would become his.

Among all the names in the list of members, however, one would often be puzzled which to choose for a correspondent in seeking the solution of some problem. What then? Then exercise another privilege—write to the secretary. Not that the secretary is omniscent, able to answer off-hand any question that might be propounded to him. But he, by virtue of his office, is in touch with all the members—knows their lines of business, knows who is likely to have this information and who that—in short, his knowledge of the members is limited only by the extent to which the members themselves utilize their privilege of corresponding with him. If he has not, therefore, at his fingers' ends the information wanted, he knows where to find it, or can refer without loss of time to the proper source. The secretary's office is to be considered and treated as a bureau of information for the members. They are invited to use it as such.

Publicity of statistics is mutually advantageous; so also is publicity of so-called trade secrets. Suppose you have a trade secret, and you have a hundred competitors, twenty-five per cent. of whom also have trade secrets. Suppose now that all exchange; your competitors gain one from you, but you gain twenty-five from your competitors. The sum of human knowledge on a subject must be worth more than the idea of a single man. If you would gain this knowledge, and yet refuse to contribute your own mite, your policy is indeed a short-sighted and a selfish one. If you make public, for the benefit of contemporaries and posterity, any improved process or method, you are not a philanthropist; for, as you have derived the bulk of your knowledge from your fellow-men and from books, you but repay an infinitesimal fraction of the debt which you owe to society.

It is plain that if this association is to accomplish the greatest good, reciprocity must be the keynote. For every unit of experience which each member contributes, he receives many fold in exchange from the experience of others. It naturally follows that the more numerous the members, the more advantageous to each.

Let me sum up briefly these ways and means of using your membership privileges:

1. Correspond on technical matters with your fellow-members; seek facts and impart them.

2. Correspond with your secretary; consider his office a bureau of information.

3. Collect accurate statistics of your operations and processes, and be prepared to exchange figures with your fellows.

4. Put into practice the knowledge gained at the conventions.

5. Help to abolish the trade secret habit. You will get more than you give.

6. Engage actively in the work of increasing the membership.

Finally, remember that the welfare of the individual as a member is dependent on the welfare of the association. Individual effort to promote its growth and its worth is the surest means of attaining its ends.

Discussion: F. W. Reidenbach said he had followed the policy of Mr. Fairlie, and had found it to work to the best advantage. He had found the plan of giving information paid, as he had tested it thoroughly during the past two years. "I have done vastly more business since adopting this method than I did when following the narrow policy of never imparting information." He said it paid to give, especially when you received more than you gave. Mr. Fairlie's statement about giving once and receiving 25 fold in return was true. "I hope to see the paper in print, and I want a copy."

The next paper was by W. A. Porter on

THE OUTSIDE VS. THE INSIDE MAN.

and was a strong plea for the latter. The author brought out in striking light the difference in the treatment accorded the traveling man and the man who remains in the office and attends to the conduct of the business from the inside. We take the following extracts:

A successful traveller *may* make some enemies, but it does not follow that he *must* make them; he need not be a prince of good fellows, but he must respect his customers and he must make them respect him and his house. A bit of sympathy is never wasted, but a salesman who talks in a derogatory manner of his own house, or of other houses, is a nuisance and abomination—his word becomes a by-word and his statements, however big, are given little thought.

The "inside" man has upon his shoulders a responsibility which varies according to the number of duties which lie to his lot, but he generally has to be a combination of a great many different kinds of a man and must be ready, at all times, to assume immediately the duties which every phase of his work demands. His greatest trouble is that he is expected to be a first-rate man at almost every class of work common to a warehouse and office and he must constantly jump from one thing to another without the slightest hesitation and without warning—he is unfortunately endowed with only one brain, but is expected to have two or three heads for each day's use.

Office-boy, invoice clerk, salesman, ledger-keeper, cashier, accountant, correspondent, buyer—he must know

enough of the work of each in order to properly control things—if he fails in the slightest degree, the powers that be are down on him like a shot.

If a travelling salesman be taken ill a substitute is provided, so that the connection may be kept up; and, upon recovery, the regular traveller takes up his work just where he left off. But let the inside man fall ill, and what happens?

Upon his return he generally finds enough work heaped up for him to make him wish that he had stayed where he was, and he is looked upon as having deliberately made himself ill in order to inconvenience others. If an epidemic strikes the staff he has the unalloyed pleasure of trying to do three or four men's work at the same time, with the result that his own work suffers and the powers that be become frigid or torrid, as the occasion seems to warrant.

Did anybody ever hear of a firm or an employer hustling around to try to furnish a substitute when an old and trusted inside or office man might be temporarily away from work through illness? He, or they, might make a spasmodic effort to have some one "just look over Smith's papers, will you?" but it seems to be always taken for granted that Smith will make things right, never mind how.

How often do employers ever think that the inside man may need money as well as the outside man—that he often has to entertain customers—that he is denied privileges which the traveller enjoys, simply because the business of the firm must appear to be conducted upon steady, strict and solid lines?

He generally expects no reward and his expectations are fulfilled—there is no halo for him, no fat increase in salary—but he knows his work and does it and he has the satisfaction of *feeling* and *knowing* what he has done was good. Others may do the *talking*, but he does the *work*, and gets his own reward in his own peculiar way.

On Tuesday evening there was a very agreeable reception of the delegates by the Mayor, City Council and civic officials of Toronto at the City Hall. The guests were received by the Mayor and Mayoress and the beautiful building was thrown open for their inspection. Music was furnished by two bands and those who felt inclined enjoyed the dancing.

Wednesday afternoon a joint meeting of the American Brass Founders' Association and the American Foundrymen's Association was held, at which several papers were read and discussed.

At the Thursday morning session the general subject for discussion was melting furnaces and oil as a fuel. A contribution by W. N. Best was read on "The Value of Liquid Fuel in Brass Foundry Practice." After giving the analyses of oil, tar and denatured alcohol, and coal and coke, the author said:

The success obtained from the use of liquid fuel depends largely upon the hydro-carbon burner used. There are possibly thousands of different burners upon the market to-day, of which the majority are of the internal mixing or injector type. In these the fuel and the atomizing agent flow out in the same direction. In another type of burner, known as an external mixer, the fuel flows down upon a sheet of steam or air and is thus carried into the furnace or fire-box of boilers. It can readily be seen that in neither of these two types of burners is the fuel broken into particles or thoroughly pulverized by the atomizing agent. We are aware that the more volatile fuels require very little atomization, but if the burner used is not of such form and capacity as to insure the thorough atomization of any grade of liquid fuel, the foundryman will be in a sad predicament whenever a shipment of low grade fuel is sent him. I always recommend an external mixing burner having the fuel orifice below the atomizer cavity, as this prevents the fuel from solidifying or carbonizing over the atomizer slot; and as the fuel passes out of the nose of the burner in a perpendicular manner, while the atomizing agent passes out horizontally, the thorough pulverization or atomization of the fuel as well as the even distribution of the flame in the combustion chamber is effected.

F. A. Coleman said he had expected to have a paper ready on the "Efficiency of Brass Melting Furnaces," but business pressure had prevented. He made a strong plea for the exhaustive study of what takes place in the melting furnace. He was of the opinion that at the present time the heat losses were tremendous and a thorough examination of the subject might bring to light more effective methods of melting. Not only might the efficiency of furnaces be increased but the quality of the metal melted might be improved, or the alloy might at least be injured less. He offered to co-operate with any of the members in carrying on this work, and he hoped at the next convention to be able to present data of some value to the association.

PROLONGING THE LIFE OF A CRUCIBLE

was the title of a most valuable paper by Dudley A. Johnson, of Chicago. In this the author gave explicit directions under the following heads: Storage, annealing, fit for the tongs, fuel, position of the crucible in the furnace, dampers, clinkers, soaking, kind of metals, flux, cooling of heat, buttons, wedging, furnace bottoms and poker. These instructions for the care of the crucible are intended to prolong its life and to have an influence upon the kind of metal produced.

THE RELATIVE ADVANTAGES OF THE PHYSICAL AND CHEMICAL EXAMINATION OF MOLDING SANDS

was treated by Heinrich Ries, Ph. D., as a valuable contribution to this much neglected subject. The matter is considered under the following divisions: Cohesiveness, refractoriness, texture, permeability and porosity, and life of foundry sands.

Two papers, one by W. M. Corse on "The Metallurgy of the Bronze Age in Europe," and the other, by J. N. Gamble, on "Quality versus Quantity," we shall present complete in a future issue.

As a whole, the convention was remarkable in many ways. Toronto is a beautiful town and the residents are justly proud of the Queen City of Canada. The hearty reception accorded the visitors and the many arrangements the local committee had provided for the entertainment of the members, made the visit to Toronto most enjoyable.

Exhibition Park, where the meetings were held, borders the lake and provides ample space in well arranged buildings for both the proper display of the exhibits and the holding of professional meetings.

Last year the United States produced more than one-half of the copper of the world, more than one-third the lead and about one-third the zinc. Of each of the above metals the United States consumed about one-third the total quantity produced.

SILVER CRADLE PRESENTATION.

DAINTY WORK OF ART BY BIRMINGHAM (ENG.) SILVERSMITHS.

(From Our Birmingham Correspondent.)

By the kind co-operation of Elkington & Co., of Birmingham, (England), we are able to exhibit a photograph of a silver cradle recently manufactured by them for presentation to the Lord Mayor of Birmingham, Alderman Sayer, who happens to be the first Lord Mayor of Birmingham whose mayoralty has had the additional distinction of a birth during his occupancy of the civic chair. It is an old custom in England, scarcely ever omitted, to present the Mayor and Mayoress with a silver cradle in connection with such an event, and as Lord Mayor Sayer is very popular his colleagues on the Council and a number of admirers took the opportunity of paying this little compliment to the family.

SILVER CRADLE PRESENTED TO MAYOR OF BIRMINGHAM, ENG.

There was some competition among Birmingham silversmiths for the dainty little contract. But Messrs. Elkington have long since had a great reputation for this class of work, and their design secured the contract against all competitors. The distinguished gathering uttered an involuntary exclamation of delight as Alderman Beale, who made the presentation, carefully lifted the cradle out of its velvet-lined oaken case and place it on the table in front of the Lord Mayor and Lady Mayoress.

The cradle is of most charming appearance as will be seen from the photograph. It is 15 inches long and of the same height, weighing about ninety ounces. The base is ornamented with amorini, carrying festoons of flowers, this decoration being continued to the canopy. The body of the cradle is richly decorated with flutings, acanthus, and olive sprays. The mace is introduced into the design as an emblem of authority and the arms of Birmingham appear on one side. On the other side is the following inscription: "Presented to the Lord Mayor and Lady Mayoress of Birmingham, Alderman and Mrs. H. J. Sayer, by members of the City Council, co-opted members, and city officials to commemorate the birth of a son during their term of office, December 27, 1907."

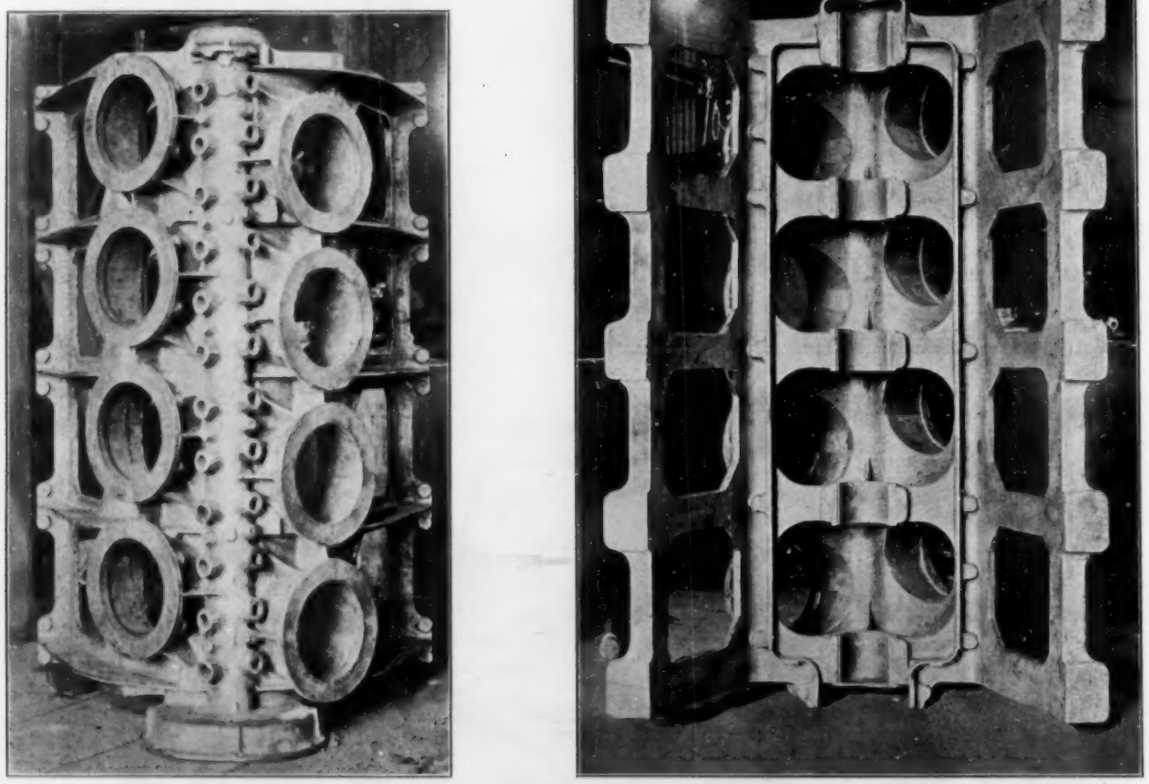
Generally, it may be said that the cradle deserves the description applied by the Lord Mayor of "a beautiful example of the silversmith's art." At his lordship's suggestion the cradle will be on exhibition at a great charitable function held in Birmingham for the raising of money for Marle Hall Convalescent Home until finally deposited in his lordship's drawing room.

Last year the United States produced 249,612 short tons of spelter and 426,146 tons of refined lead. Most of the lead came from the Idaho and Missouri-Kansas districts, the Utah district ranking third.

THE LARGEST BRONZE GASOLINE ENGINE FRAME CAST.

The William Cramp & Sons Ship & Engine Building Company, of Philadelphia, Pa., have just completed the largest Parsons manganese bronze engine frame ever cast. The casting weighed 1,096 pounds, and although very difficult to make—a statement which will be appreciated upon examination of the engravings here produced—was successfully made at the first pouring. The casting was used in a motor for a gasolene-electric car for interurban service.

Manganese bronze castings are very rapidly coming into use where reliability, strength and free machining qualities are considered essential. Automobile manufacturers have long recognized their superior qualities and have freely used them wherever possible. In a complicated casting such as the one illustrated, the integrity of the metal is of the most importance, and at the same time it must have all the strength necessary for a piece of this shape and intended for such severe service.



THE LARGEST BRONZE GASOLINE ENGINE FRAME CASTING.

According to the London Times, glass mirrors are being replaced by metallic ones for searchlights and other uses. Those made of glass are objectionable, owing to their liability to fracture when the guns on shipboard are fired, and to the silvering blistering and separating from the glass. The metal mirror is made partially by electro-deposition, and has a surface compound of alternate bands or rings of gold and white reflecting surfaces. It is claimed that this gives a more penetrating beam of light, both at night and in foggy weather, and that the objects illuminated stand out in higher relief than that with the ordinary beam.

BRITISH NOTES.

(From our Birmingham Correspondent.)

An interesting lecture on brass was delivered by Professor Thomas Turner at the University of Birmingham on April 28 in connection with the Workers' Educational League. The Professor pointed out that the development of the metallurgic arts is an index to the civilization and prosperity of the nation. The Professor mentioned the interesting fact that whereas, when Queen Victoria ascended the throne there were 175 brass works in Birmingham with an average of less than 20 employees each, there are now 800 establishments averaging 50 employees each. The trade has enormously expanded though it is still largely in the hands of relatively small firms, and in America, particularly, enormous quantities of copper alloys are now produced and the manufactories and methods are of the most approved style. Dealing with the metallurgy of copper, the speaker described three distinct kinds such as conductivity copper, best select, and wrought copper. The remainder of the lecture was an illustrated description of the production and refining of copper by modern methods in England and in America. As typical of modern practice, the smelting at Anaconda and the electric refining of copper in New Jersey were described in detail.

Professor Turner's second lecture on "Brass" was mainly historical, but there was an interesting reference to the development of the aluminium trade, owing to its increasing use and diminished cost. Fifty years ago, said the Professor, the aluminum prepared by Deville was worth more than its weight in gold. The Birmingham district did its share in the next

stage of the development through Webster's works at Yardley Wood and the Aluminium company's works at Oldbury, both of which were remarkable. But the electric reduction process had displaced all others, and though the business was of the nature of a trade combination, the output had increased so that in 1907 nearly 20,000 tons of aluminium was produced, and it could now be purchased at the rate of slightly less than 1s. a pound. The abundance of zinc and the cheapening of aluminium had gone a long way towards making up the world's shortage of tin.

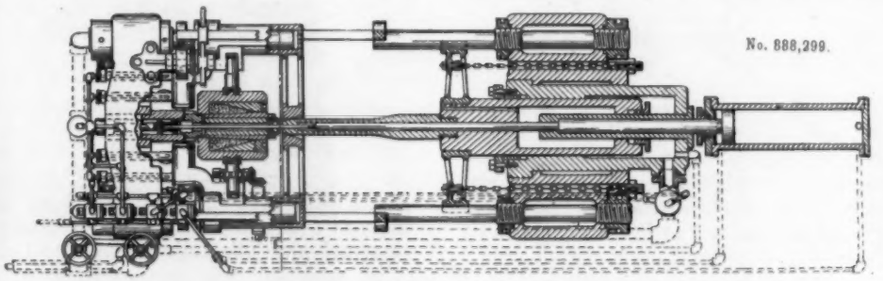
Some concern has been caused among Birmingham jewelers by a new regulation which is to come into effect on July 1 next under the Australian Commonwealth. The regulation provides that henceforward the assay mark on jewelry shall be considered to indicate the quality of the complete article, inclusive of solder, but exclusive of pins, catches and joints. Subject to these conditions, jewelry imported must assay within one-quarter-carat remedy of the Assay Mark. Otherwise the importation will be treated as "incorrectly described." In regard to importations up to the 30 of June next, the margin of remedy will be allowed to the extent of ¼ carat. The Customs Department cannot recognize the British Hall Mark on jewelry as final, since it is frequently applied to partly made goods. Goods which no not comply with these conditions will be mutilated and confiscated, or, even under the most favorable circumstances, mutilated and returned to the manufacturer.

Birmingham merchants get some quaint orders occasionally. One of the strangest recently was a very ornate, all-brass coffin, sent to Calabar, apparently for the use of some chieftain. In that district brass rods are still used for currency, and ring money, a peculiarly-shaped copper alloy, of which huge quantities have been made in Birmingham, is still in use, but the tendency is to gradually adopt the ordinary coinage system, and this has now become the vogue even in such benighted places as Algeria.

METAL EXTENSION MACHINE.

An extrusion machine, for which letters patent were issued May 19, 1908, to George H. Benjamin and by him assigned to the Coe Brass Manufacturing Company, of Torrington, Conn., may be employed in the making of solid or hollow wire rods, bars and the like. The invention has for its main object to decrease the space occupied by the machine, to increase the output of the machine, to decrease the number of men required to operate the machine, and to provide means for controlling all the operations of the machine from a given locality.

At one end of the frame is the die holder and at the opposite end a hydraulic cylinder carrying a piston arranged to be brought into operation with the die. When tubes are to be formed the perforated heated billet is placed in a container and a mandrel introduced. The extrusion of the metal then takes place, the work being done by the principal hydraulic piston. After the completion of the tube provision is made for the withdrawal of the parts to their first position.



METAL EXTRUSION MACHINE.

But three men are required to operate the machine; one man introducing the heated billet, manipulating the saw and removing the billet; a second man, on the other side of the machine, assists in introducing the billet into the container and controls the position of the container, and a third man on the same side of the machine manipulates the valves. The entire mechanism is contained within the frame, rendering the machine compact and doing away with all the additional frames and carriages commonly employed in machines of this character.

Last year we sold to Canada $708,000 worth of watches; Japan was our next best customer, buying $352,000, during the same period. In both cases this was a large increase over the trade of the previous year.

JEWELRY IN SAN SALVADOR.

There are only three jewelry stores in the city of San Salvador, which is explained on the supposition that the rich natives make their purchases in New York and Paris while traveling. The solid silver articles on sale consist chiefly of fruit spoons, cups, hand mirrors, napkin rings, toilet articles, etc., which are mostly bought from American manufacturers because of the fineness of design and workmanship. But the trade complain that a lighter article of the same grade would find a more ready sale. Plated ware comes from the United States and Germany in about the same proportions, the former being preferred on account of quality. Watches come from America and Switzerland in about equal numbers, but clocks are almost all American. Gold plated articles are from Austria, whose dealers offer a great variety of styles at less cost than those made by American houses.

Solid gold rings, scarf pins, breastpins, and other solid settings come equally from the United States and Germany, each having certain advantages which make it advisable to keep both kinds in stock. Prices are about the same.

The finer grades of knives and forks are purchased in the United States because of their quality and finish, while in the ordinary and common grades the prices of German goods are lower than those offered by American houses.

According to a report by the United States Consul at Chemnitz, the German universities are sending out too many chemists, the consequence being that the demand at home has been far exceeded and wages reduced to ridiculous figures. Many of these young chemists have gone to foreign countries and they can now be found in every land.

LATTEN (YELLOW BRASS).

It is known that yellow brass, which may be rolled and cast, becomes more or less brittle when exposed or worked at temperatures between 300 and 550 degrees centigrade. According to a patent bearing the heading Latten (Yellow Brass), this brittleness is caused by a certain percentage of lead or oxides or both, which cannot be avoided in the usual methods of industrial production.

According to the present invention, for which letters patent have been granted Richard Stribeck, of Grunewald, near Berlin, Germany, this brittleness can be avoided by the addition of a certain quantity of phosphorus, the percentage of the latter being provided in order to produce an alloy in which 0.03 to 0.10 parts of phosphorus are contained per 100 parts of total weight of the alloy ready for being worked or otherwise used.

It is stated that the augmentation or diminution of this percentage is unfit for the effect aimed at and will even prove to be detrimental in many cases, inasmuch as a surplus of phosphorus reduces the malleability of the material, while insufficient phosphoration of the same does not, as it is intended, do away with the above-said brittleness appearing at high temperatures in common latten-compositions. Within the above-indicated limits, viz., between 0.03 and 0.10%, the addition of phosphorus to common latten varies according to the amount of lead or oxids which is contained in the material supplied by the trade and subjected to the modification according to the present invention.

It is in itself known to add phosphorus to latten. But it is new to measure this addition of phosphorus in such a way that in the finished metal an amount of phosphorus is contained which is no smaller than 0.03 and no larger than 0.10%. The quantity of the addition of phosphorus to the charge which corresponds to this amount of phosphorus in the finished metal depends upon the kind of phosphorus added and upon the method of smelting, and may in each case be easily determined by the aid of analysis. The metal described differs also materially from the kinds of so-called latten which are malleable when warm, for the latter are tough only at red-heat, but do not show any sufficient toughness at temperatures between 300 and 550 degrees.

ALUMINUM.

The following statistics in relation to the production and consumption of aluminum are taken from the advance chapter of the Mineral Resources of the United States, issued by the Geological Survey. The industry started in 1883 when 83 pounds of metal were produced; last year the total production was 17,211,000 pounds.

The Pittsburg Reduction Company, now the Aluminum Company of America, began operations in Pittsburg in 1888, and in 1890 the works were greatly enlarged and moved to New Kensington. Since 1896 the production of pig aluminum at these was abandoned and they have since been devoted to the manufacture of the pig aluminum into more or less finished forms. Other works now operated by the company are at Niagara Falls, Massena, N. Y., Shawenegan Falls, Canada, and at East St. Louis, Ill. Last year the chemical plant at the latter place was greatly enlarged. The material from the Arkansas mines is washed and treated to free it from iron, silica, titanium oxide and water at the East St. Louis plant.

The processes employed in the production of pure alumina have, so far as known, remained unchanged. The bauxite is first calcined to remove water and some oxygen. The subsequent treatment, invented by Hall, consists in treating the impure material mixed with the proper quantity of carbon in an electric furnace, whereby the more reducible iron, sillica, and titanium are extracted, leaving the alumnia.

At New Kensington the company has installed a continuous mill for rolling aluminum sheets, the only one of its kind in existence. This mill is said to have a larger capacity for rolling sheets than any mill in the country. A new rolling and sheet mill has also been in course of construction at Niagara Falls, and will be one of the largest and most complete sheet rolling mills in America. At Niagara Falls the lower plant has been increased to use 45,000 horsepower, divided into 5 units of 9,000 horsepower each. The company has purchased the entire plant of the St. Lawrence Power Company and proposes to dredge so as to have a capacity of 80,000 horsepower.

THE USE OF MANGANESE IN BRASS FOUNDRIES.

By W. A. C. Pape.

Although it is as yet but little known, 30% manganese copper is probably of more value to the brass founder than any other alloy yet discovered. All copper metal, either in ingots or scrap, exists partially as an oxide; remove this oxide and you improve the density, strength and ductility of the copper. This rule applies, and results are the same whether the copper is to be used in a casting or made into sheets, bars or wire.

Take metallic copper, deoxidize it with manganese and you have manganese bronze, the strongest and best bronze of all metal, having the physical characteristics of soft steel, the color of light gold, is uncorrosive as brass, more dense than brass, susceptible of a high polish, and which can be rolled or drawn better than brass. Its value is now being recognized by the United States Government, and they are now buying considerable quantities of it.

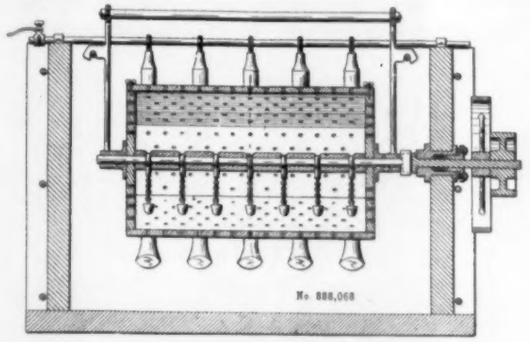
Manganese bronze, to get the best results, should be made and poured at once and not made into ingots and then remelted. The following is the German method of making manganese bronze. Of course, if it is only desired to deoxidize the copper, the work can be stopped at that point:

Select a good clean crucible and a lid for same. Assuming it to be a 100-lb. charge, break up 62 lbs. of lake copper, 6 lbs. of 30 per cent. manganese copper, put in crucible, letting the manganese copper be well distributed through the copper; fill top of crucible with several inches of powdered charcoal, put on lid and put in furnace as usual. When melting is completed, withdraw crucible from furnace and stir with hickory, oak or graphite rod (do not in any event use an iron rod) until it is cooled a bit, and then add 40 lbs. of spelter. This completes the process, and your manganese bronze is now made. It is desirable in pouring manganese bronze to pour at as low a heat as possible to get best results.

In making brass castings, an addition of 3 to 5 per cent. of 30 per cent. manganese copper will greatly increase density of the castings and will increase the tensile strength from 50 to 100 per cent. It is being largely used in Europe for the manufacture of locomotive staybolts, electrical apparatus, stuffing boxes, high speed bearings, etc.

IMPROVED ELECTROPLATING APPARATUS.

On May 19 last letters patent were issued to John T. Daniels, and by him assigned to the Hanson & Van Winkle Company, of Newark, N. J., for an improved revolving electroplating apparatus. In the old form of plating machine of this type the cathode elements



ELECTROPLATING APPARATUS.

were loosely mounted upon the central shaft of the container. From this arose the objection that the greater body portion of each bar, being rigid, will lie directly upon the upper surface of the bulk of articles within the container, instead of readily entering between the articles, thereby in many instances producing a very poor electrical contact.

The present invention overcomes this difficulty and provides a better cathode contact with the articles. As will be seen by reference to the accompanying cut, this object is accomplished by making the cathode with a flexible middle portion, a chain, for instance. At the same time the end of each cathode has a relatively rigid portion of such weight as to insure its remaining, during the rotation of the drum or retainer, within, and covered by the articles being plated. This embedding of the cathodes within the mass of articles is done without undue friction with the articles or resistance to the revolution of the drum. The advantages this form of cathode possesses over the rigid will be appreciated.

According to a table prepared by Vice-Consul General George E. Chamberlain the export of tin to the United States from the Straits Settlements, including the ports of Singapore and Penang, amounted to 9,738 long tons. In the previous year the export amounted to 15,133 tons. The export of tin to Europe during 1907 was 42,819 and during 1906 42,047 long tons.

The collector of customs for Alaska states that the gold production for 1907 falls about $2,000,000 short of that for the preceding year. This is explained by labor troubles and miners' strikes. The output of gold last year was $16,911,882, as against $18,707,045 for the previous year. Last year the export of copper ore and matte was valued at $1,742,120.

According to the United States Consul General, of Frankfort, Germany, last year's production of copper, for the first time in fifteen years, shows a decrease; the world's total output in 1907 was 713,000 tons, the principal producers contributing as follows: United States 421,400, England 72,400, Central and South America 57,000, Germany 31,900, Japan 45,000, Austria 32,500, Russia 15,000. The consumption, as estimated, was in tons: United States 232,600, Germany 149,800, Great Britain 108,200, France 65,000, Russia 18,000, and Asia, Africa, and Australia together 32,600.

THE TESTING OF GALVANIZED OR ZINCED IRON.

By Sherard Cowper-Coles.

It is a matter of considerable importance to engineers who use galvanized iron to know the amount of zinc that is applied per square foot of the surface. The thickness of zinc has hitherto been determined almost universally by the copper sulphate test, known as Preece's test, which consists in placing the galvanized iron in a saturated solution of copper sulphate for one minute and continuing the immersions until it shows a red deposit of copper, which is a true indication that the zinc has been penetrated and the iron exposed. This test, when carefully carried out, is fairly reliable as regards hot galvanized iron, but it is found quite useless for the more recent forms of galvanizing which are now being extensively used by large manufacturing firms and the Government, namely: Electro-galvanizing and Sherardizing, for the following reasons:

On applying Preece's test to Sherardized and hot galvanized articles coated with an equal thickness of zinc, the former require from three to four times the number of immersions which suffice to remove the zinc from the latter. When hot galvanized articles are placed in a saturated solution of copper sulphate, the copper is precipitated in a loose form, but when Sherardized, Cowperized or electro-zinced articles are similarly treated, the copper adheres firmly to the zinc and no fresh surface is exposed, apparently due to the deposit of zinc applied by the electro-zincing, Sherardizing and Cowperizing processes having a fine matted surface.

It would appear from these observations that the apparently great resistance to corrosion of Sherardized iron when subjected to Preece's test, is due to the protection of the zinc by the deposited copper, so experiments were made with a solution of ferric sulphate, which dissolves zinc without forming a precipitate on the zinc coating. To test this known areas of Sherardized and hot galvanized plate were exposed to the action of ferric-sulphate solution for an equal period and the amount of ferrous salt formed by the reducing action of the zinc determined.

The column headed, "Weight of Zinc Dissolved," shows the relative corrosion:

Nos.	Samples.	Zinc per sq. ft. grams.	Weight of zinc Dissolved. grams.
1.	Sherardized	26.908	0.080
2.	Sherardized	26.908	0.074
3.	Sherardized	22.93	0.057
4.	Hot galvanized	22.12	0.058
5.	Sherardized	31.116	0.034

Sample No. 2 was moistened with water and allowed to dry, the oxide formed appears to protect the zinc and this protection is more marked if water is allowed to act for a longer period than was permissible in these experiments.

It will be noticed that samples 1 and 2, which had a thicker coating than samples 3 and 4, dissolved to a greater extent than samples 3 and 4, which had practically the same weight of zinc coating dissolved. Sample 5 was Sherardized copper and, although the zinc coating was the heaviest, yet the corrosion was in this case the least, probably due to the conversion of the greater portion of the zinc into brass. On testing this sample with copper sulphate solution, as in the other cases, instead of a brown precipitate of copper, a bright metallic deposit was obtained and no further action seemed to occur.

From the results of experiments, the copper sulphate test has been found to be quite unsuitable for testing electro-zinced, Sherardized or Cowperized surfaces, therefore, it will be necessary in future to substitute some other test, such as the ferric sulphate test or a modification of the copper sulphate test.

MOVABLE PLATING APPARATUS.

In a patent issued to George P. Stevens, of Chicago, Ill., May 12, 1908, we find several unusual claims. It is well known that in ordinary electroplating the rapidity of the deposit of nickel will depend upon the strength of the current and the richness of the plating solution; but it is also known that under usual conditions, the work can be successfully performed only by means of a current of moderate strength, since any increase in the strength of the current or in the richness of the solution will tend to burn or blacken the work and thereby destroy its value.

The object of the present invention is to enable the plating operation to be performed by a current of much greater intensity and in a stronger solution, thereby proportionately increasing the rapidity with which the plating can be done and correspondingly increasing the capacity of the plating tank.

The principal feature of the new device rests in providing means for reciprocating the supporting rods from which the work to be plated is suspended. By moving the work within the solution it is possible to employ a much stronger current and consequently facilitate the plating operation without burning or blackening the work. A simple construction is provided for moving the rods forward and back. The rods are moved at a slow enough rate to permit the work to hang substantially vertical without being swung or violently agitated within the tank.

The following statement is made:

"By employing the method of the present invention it has been found, from actual test, that the work can be accomplished in substantially one-third the time ordinarily employed. It has, furthermore, been shown that the work plated by the apparatus of the present invention is brighter and more satisfactory in character than that produced by the ordinary methods."

COPPER PLATING ALUMINUM.

By CHAS. H. PROCTOR.

The formula for copper plating aluminum is:

Cyanide of potassium	3½	ozs.
Carbonate of copper	2	"
Sal soda	1½	"
Bisulphite of soda	2½	"
Water	1	gal.

The solution should be kept at a temperature of at least 180 degrees. In carrying out the work the following method should be followed: The articles are cleaned in benzine, then passed through a dilute warm potash bath, immersed for a few seconds in a 5 per cent. solution of hydrochloric acid in water, then washed and finally immersed in a blue mercury dip made up as follows:

Cyanide of potassium	3	ozs.
Nitrate of mercury	½	"
Water	1	gal.

If the aluminum is not completely covered with a thin film of mercury the operation is repeated a second time. The articles are then washed and placed in the copper bath until a sufficient deposit has been obtained. The success in plating aluminum rests in first obtaining a thin film of mercury, which prevents the solution from acting upon the aluminum.

ETCHING ON SILVERWARE.

We have received the following communication:

Will you kindly give me whatever information is possible, in detail or suggestion, of the method of etching without the necessity of afterward engraving, on the surface of concave and convex objects, such as in the bowl of a spoon or on the surface of a cup?

The above was referred to Mr. Saunders, who replies as follows: BY A. F. SAUNDERS.

Replying to the question of etching on silverware, I would state that my article in your April, last, issue explains about all there is to it. Evidently the work your correspondent has in mind, that is done in large quantities, such as bowls of spoons, etc., is done by the photo-etching process. This is a separate process and is far from hand work in both artistic merit and durability.

If the etching is done in two operations, engraving is not necessary at all. First, paint in the design or lettering with the etching ground (formula given in the article on "Decorative Etching on Silverware"); when thoroughly dry, etch to the required depth. Then coat the whole object with a second coat, and when this is dry the detail and shading are done with the scratcher by simply scraping away the paint. As an even, clear line cannot be obtained if too much pressure is used, it is not necessary to dig into the metal. If instructions are followed carefully, with a little experimenting and practice, good results will surely be obtained. Too much care cannot be taken with the cleaning of the parts to be etched, as any trace of grease will leave a rough, spotty surface.

SILICIUM AS A REDUCING AGENT FOR COPPER.

The following account of the application of silicic acid to the deoxidizing of copper we take from the report of the United States Vice-Consul at Barmen:

Not taking into consideration the important carbons and metals found in combination, the silicium that is used in the glass and porcelain industries, the addition of silicium to bronzes for the augmentation of the hardness and firmness of the bronzes, is of the highest technical importance.

The foundry trade well knows the difficulties of pure copper casting, which difficulty rests primarily on the fact that in melted copper, unavoidably, copper oxides are generated. As a reduction agent phosphor is generally used, but late experiments by English experts prove that additions with silicium copper (pure silicium cannot be used) are preferable. They clean more effectively, harden and tighten better the copper structure and their alloys. The reason for this is that the unification of copper silicon has a higher heat effect than copper alone, and silicon impairs the oxidization.

Although ignition follows very easily when silicon copper is added to silicium there is, however, no danger of explosion. The addition is given with 1½ to 100 pounds of copper. The copper thus treated is particularly recommended for electric conducting wire. It is more easily drawn to wire than copper combined with phosphor. The wires are better for telegraphic and telephonic purposes because they do not corrode, possess a maximum conductive power, and owing to minimum thickness are lighter.

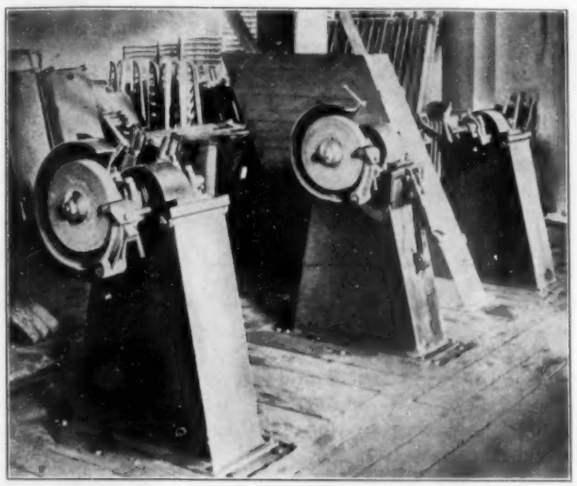
Additional uses for silicium copper are obtained in the process of molding and casting tin and brass bronzes. Smaller additions add to the removal of gases and the avoidance of the formation of oxides. The addition follows best shortly before the smelting pot with the melted copper is withdrawn from the furnace. An average analysis shows the following percentages: Silicium, 10.21; copper, 89.60; iron, 0.34, and aluminum, 0.15.

INDUSTRIAL

NEW AND USEFUL DEVICES, MACHINERY AND SUPPLIES OF INTEREST TO THE READERS OF THE METAL INDUSTRY.

THE WHITNEY GRINDING AND POLISHING JACK.

Our illustration shows three Whitney Jacks which have been installed at the works of the manufacturers of these jacks, the New Britain Machine Company, of New Britain, Conn. As the company have no polishing to do and, desiring to have an installation which they could show in operation, this group was placed in position in the basement, where it was necessary to dig a trench for the driving shaft, which is driven



WHITNEY GRINDING AND POLISHING JACK.

from the overhead shaft by the belt as shown. The machines are used entirely for snagging castings, and it is very evident that any machine that will stand up for this heavy work will certainly stand up for polishing. Hence these machines do much more severe work than they would be called upon to do in regular service.

Each of the two machines in the foreground is supplied with an adjustable hood, or guard, with work rest. The guard and rest may be set in almost any position which is easiest for the handling of work, and the position of the guard is set instantly with set handles, no wrenches being required.

The third jack in the background has been arranged with the bearings cut away so as to show the oiling arrangement. This shows how the oil is carried up from the chamber below, forced out at the top and guided by runways to various parts of the bearing. The oil flows in a steady stream, bathing the bearing all the time and giving just the right lubrication.

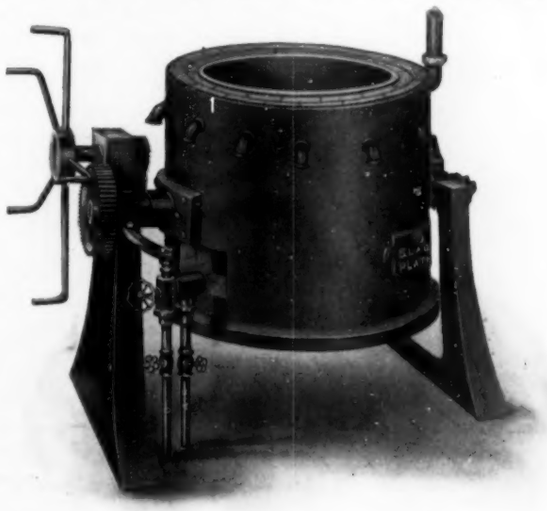
The Board of General Appraisers has decided that flexible tubing made of copper and covered with a mesh or braid of woven copper wire, the wire representing but 15 per cent. of the entire article, is dutiable under paragraph 176, tariff act of 1897, relating to "copper pipes," and not as an article manufactured from copper wire under the second proviso to paragraph 137. The tubing is therefore dutiable at 2½ cents per pound and not at the rate of 45 per cent., ad valorum, plus 1¼ cents per pound.

SOFT METAL MELTING FURNACES.

We here illustrate two furnaces of the "Monarch" type, one stationary and the other tilting, and also a "Monarch" ladle heater. These furnaces are particularly

STATIONARY TYPE OF MELTING FURNACE.

intended for the melting of all the soft metals. The tilting type is very convenient for pouring lead, babbitt, spelter, etc., into pigs or molds. A truck containing the molds can be run up under the furnace, and the molten



TILTING TYPE OF MELTING FURNACE.

metal can be poured therein. A special large lip pot is used for this style. The non-tilting type is adapted for dipping out the contents with a small ladle. Aluminum can be very readily melted in this, and the pot lined with fire-clay mixture. These are made to hold from 500 to 2,000 pounds. Both these furnaces are very economical in fuel consumption, and the desired degree of heat can be easily obtained and steadily kept up.

The ladle heater is made to hold a ladle which is arranged to be heated with the company's oil or gas burner. This heater was designed for the reason that in order to receive hot metal, it is strictly essential to have a hot

MONARCH LADLE HEATER.

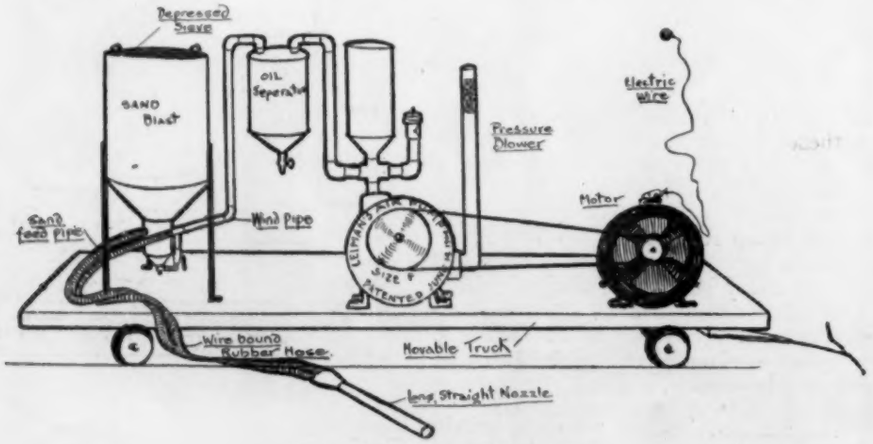
ladle. The heater will hold a bowl from 50 to 200 pounds capacity. The burners used in the above are of the "Monarch" type, and are adapted to use either oil or gas,

All of the above devices are built by the Monarch Engineering & Manufacturing Company, of Baltimore, Md.

THE LEIMAN NEW PORTABLE SAND BLAST.

The diagrammatic sketch here presented shows a complete portable sand blast outfit which has been designed and placed on the market by Leiman Brothers, Brill street and Bonykamper avenue, Newark, N. J., and 139-143 Centre street, New York City. This outfit is all mounted upon a small platform truck, which can be readily moved from place to place to suit the demands of the work. At one end of the platform is located the electric motor, which receives current from the nearest circuit. This drives a pressure blower from which the air, after passing through the oil separator, enters the pipe which delivers the air at the nozzle.

The nozzle of the machine is a long, straight piece of ordinary iron pipe without the tapered hole usually used, and there is therefore very little wear. The air goes directly from the compressor to the mixing chamber at the base of the nozzle, the vacuum created there drawing the sand through the sand feed pipe from the tank. As the sand reaches the mixing chamber it receives the full pressure of the air, driving it through the nozzle without the necessity of making the nozzle tapered in order to increase the pressure. In this way not only can a larger nozzle be used, thereby covering a much larger surface with a given pressure of air, but it may be longer, even to the extent of several feet, enabling the operator to stand at a distance from his work with just as satisfactory results. The fact that the air does not go through the machine itself does away with the necessity of making it of steel and it is therefore made of heavy galvanized iron. In the top of the tank is a depressed sieve which sifts the sand automatically. The machine holds enough sand for three or four hours' continuous work. The blower is used with the machine for removing sand from castings and for finishing metal goods. For heavy work on castings an air compressor may be used, when the machine will do any work however large.



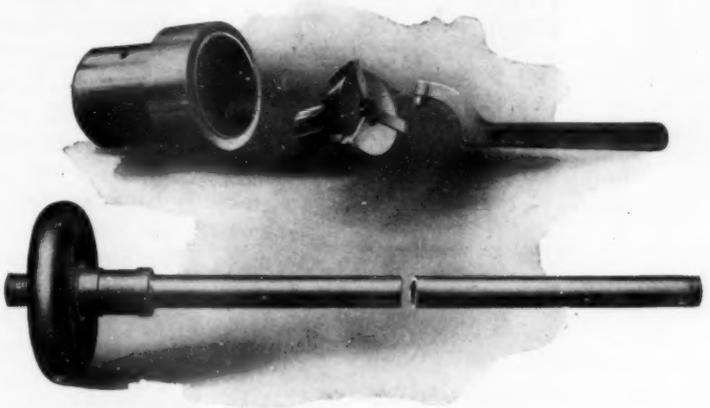
NEW PORTABLE SAND BLAST.

NEW LACQUERS.

The Egyptian Lacquer Manufacturing Company, 152 Front street, New York City, are placing upon the market a series of new lacquers which they have thoroughly tried and tested, and which are the direct results of the modern scientific methods adopted by this company in their search for new lacquers for special requirements. One of the most serviceable of these is the Egyptian Water Dip Lacquer Special No. 1, which may be used for small work, such as window fasteners, cheap builder's hardware, hooks, tacks, furniture nails and other similar metal novelties. This lacquer is claimed to be especially valuable in that it may be used in connection with the work done by the mechanical plater. The work may be taken in large quantities and may be prepared for plating by either sawdust, leather, or steel ball tumbling, or by wet rolling, and then plated and oxidized in bulk. It can be taken from the barrel, placed in a wire mesh basket, rinsed in cold and hot waters and then dipped into this new grade lacquer, which can be used so thin that there is no possibility of an accumulation of drip, and it can be dried without having the work stick.

THE "A. C." DRAW-IN ATTACHMENT WITH ADJUSTABLE SPRING COLLET CHUCK.

This attachment, designed for use on engine, speed and turret lathes, has been placed on the market by the Adjustable Collet Company, of 211 High avenue, Cleveland, O. It takes the place of a full set of the ordinary draw-in spring collets, thereby doing away with the bother of changing from one size to another, as in the old way. This device grips any diameter of stock within its range. The hood is threaded direct to the spindle of the lathe, and the adjustable spring collet fitted into the hood, thereby always insuring the true running of the collet. The tool is furnished with jaws for bar stock, and step jaws for castings, collars, etc., and stock that is larger in diameter than the passing capacity of the spindle.

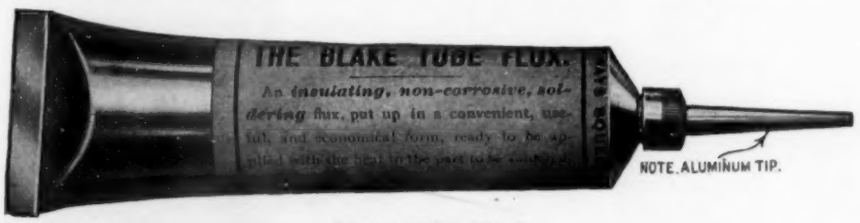


THE "A. C." SPRING COLLET CHUCK.

These tools are made to meet the requirements of any size or make of lathe. The No. 50 has a capacity of ⅛ to ¾ inch; No. 51 from ⅛ to 1 inch; and No. 52 from ⅛ to 1½ inches, inclusive. All are provided with step jaws.

THE BLAKE TUBE FLUX.

The accompanying cut illustrates a new method of putting up soldering flux, the convenience of which will be appreciated by those familiar with the process of soldering. The collapsible tube, together with the aluminum spout, permit of the flux being squeezed out in just the required quantity exactly at the spot desired. This insures a good, neat job and no waste of flux. Also with soldering flux put up in this form there is no waste from the accumulation of dust and grit; the last flux squeezed from the tube is as good as the first.



BLAKE TUBE FLUX.

For shop work, repair work and line work of every description the convenience is most marked. Two hands do not have to be used to supply the flux, there is no cover to come off and allow tools to become daubed with flux in the tool kit, no splints to get lost and time wasted in finding something with which to properly apply the flux. The quality of the flux is stated to be of the best, being insulating and non-corrosive. The cut herewith is nearly full size, each tube containing two ounces net of flux.

These tubes, with aluminum spouts, are put up exclusively by the Blake Signal & Manufacturing Company, 246 Sumner street, Boston, Mass.

COLD GALVANIZING—IMPORTANT PATENT DECISION.

An important decision in equity, on final hearing, has just been rendered by Judge Cross, of the Circuit Court of the United States, District of New Jersey, in favor of the Hanson & Van Winkle Co., of Newark, N. J., and Chicago, Ill., and against the United States Electro-Galvanizing Co., of Brooklyn, N. Y., the decision clearing the electro-galvanizing process of the Hanson & Van Winkle Co., from the charge of infringement. This seems to be a particularly opportune time to call attention of those interested in the electro-galvanizing process to the perfection to which this art has been brought, and to the fact that certain salts and processes have now been authoritatively proven to be free and clear of all infringements of existing patents, which have heretofore been asserted to be all controlling.

Electro-galvanizing of certain kinds of work is now specified by the Governments of Great Britain and Germany, and the United States Government has installed at its various shipyards complete equipments for the purpose of treating articles by the electrical method. A large number of manufacturers find this process useful, particularly those who desire to galvanize work of high temper, or small cross section which is apt to lose temper or to become warped or distorted owing to the high temperature of the hot bath.

The United States Consul General, Mexico City, states that his office has received many inquiries in regard to reported rich deposits of bismuth in the State of Guanajuato. He says the report of these discoveries is without foundation.

EDITORIAL

OLD SERIES VOL. 14, NO. 6. NEW YORK, JUNE, 1908. NEW SERIES VOL. 6, NO. 6.

THE METAL INDUSTRY

THE CONSOLIDATION OF
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THE BRASS FOUNDER AND FINISHER
ELECTRO-PLATERS' REVIEW
COPPER AND BRASS

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ADVERTISING RATES ON APPLICATION

ENTERED FEBRUARY 10, 1803, AT NEW YORK, N. Y., AS SECOND CLASS MATTER UNDER ACT OF CONGRESS MARCH 3, 1879.

CONTENTS

JOINT MEETINGS OF ASSOCIATIONS.

A few days since five associations met in convention at Toronto, Canada, the American Foundrymen's Association, the American Brass Founders' Association, the Foundry Supply Association, the Association of Foundry Foremen, and the National Brass Manufacturers' Association. The exhibits were provided by the Supply Association; the manufacturers discussed matters of business import; the other three associations convened solely for the purposes of education—their members attended to receive and impart knowledge, and when on a trip of this character the aim is to learn, to keep the eyes open to the exhibition, and the ears open to the reading and discussion of the papers.

This convention brought into prominence several serious disadvantages arising from joint meetings where the interests closely approach and frequently overlap. In order that this may be understood it is only necessary to state that the exhibition in itself was the most extensive and comprehensive of any in the history of the societies, and was well worth all the time that could be devoted to it. The American Foundrymen's Association scheduled some 25 papers, in addition to several discussions of important topics and reports of special committees. The American Brass Founders' Association had a program calling for 11 papers. The meetings of these two associations were held in two separate buildings, located quite a distance apart, so that it was very inconvenient to get from one to the other. In consequence of this those who desired to attend the sessions of both societies were placed at a decided disadvantage and were compelled to make a choice of which meeting they would attend and skip the discussion at the other. To say the least this was not satisfactory.

The live exhibits, and by this we mean those that required power for their operation, were shut down during the sessions. This created friction with the supply men who had come to exhibit their machines and who were only mildly interested in the reading of papers. But the meetings—perhaps because of this—were more generally attended than at any previous convention. Neverthless, the whole arrangement was unsatisfactory.

But the mere saying of this does not provide any remedy for the trouble. The exhibits are there to be inspected and the meetings are to be attended, and the remedy for the inconvenience rests with the governing officers of the three societies. It has been proposed to have the meetings all together, and have all the papers read at these meetings. Forty papers, together with topical questions and committee reports, would make an extremely tiresome program, and the papers near the end would receive scant courtesy. A second plan is to have rules

governing the acceptance of papers more rigid and to throw out those which are not relevant. A time limit on discussions and the reading of the papers in abstract would make the sessions more interesting to all concerned. We presume much of this trouble will be obviated at the convention at Cincinnati next year.

BIRMINGHAM JEWELERS' SCHOOL.

When we look across the water to England we find they conduct their art schools in a way very different from that followed in this country. The work of the Jewelers' Art School, of Birmingham, and the methods pursued in supporting the school and the courses taught, are not as well known here as they should be if we are to derive any benefit from their example. A few weeks ago the high reputation of these schools was voiced by Mr. Rothenstein, a well-known art critic, who declared that Birmingham had "one of the soundest and most vital training places in Europe."

The school is unique in one particular, if in nothing else; it is the only one run with the aid of a trade association. At a recent meeting the spirit of the trade was illustrated by the fact that a large firm recently called their workpeople together, with the result that they found the latter quite as anxious as the employers to grant facilities of attendance, and this has enabled them to allow 18 of their boys to attend the afternoon classes. It seems likely this example will be followed by others, and this will lead to a large increase of attendance.

The main point is that the firms and journeymen work together for the education of the apprentice. Recognizing the fact that the apprentice is too tired to do efficient work in a night class, provision has been made for afternoon classes, the apprentice being granted the privilege of taking the necessary time to attend the classes. The courses are very complete and noteworthy in one respect —the endeavor is to train the individual and to bring out and develop any talent he may have. There is no well marked road along which all are compelled to tread; each student pursues his own path and he is instructed along lines fitting his ability. This fact, coupled with the earnest assistance of the trade, may be taken as the foundation upon which these schools are built; and the excellent work turned out is the result of this system.

The Cullinan diamond, the largest in the world, which was presented by the Transvaal to King Edward, is now being cut in the Amsterdam works of Joseph Asscher & Company. The diamond has been split and the larger piece will probably be cup drop-shaped.

According to Prof. Thomas Turner, in a lecture delivered at the University of Birmingham recently, the manufacture of brass was introduced into England in 1565, while brassworks, which are still in existence, were started in Bristol about 1702. Brass was first made in Birmingham in 1740.

READING TRADE JOURNALS.

"If we had not read the trade journals during the past year, we would have thrown $10,000 worth of business away."

This was the remark of an active furnace builder to a representative of THE METAL INDUSTRY in a talk on the value of trade journals. The manufacturer also stated that he had a regular system of reading and clipping trade journals that came into the office and then filing them away. There was no pile of unopened papers lying around on desks or other handy places waiting to be read some day. The result was that that manufacturer was securing business from his sources of information right straight along and was, as well, being kept posted on the latest and best shop practice in the respective fields of industries in which he was interested. This is a clear proof of how important it is to read good reliable trade journals and is in itself a striking criticism of the oft-heard expression that "we do not get time to read the trade papers."

Without wishing to intrude our own paper in this editorial on "The Value of Trade Journals" and without mentioning the valuable, instructive features of THE METAL INDUSTRY, we wish to say a word or two about the commercial pages of our paper from which manufacturers can secure business.

First there is the departments of "Associations and Societies" and "Personals," by which manufacturers can get in touch with associations and societies and individuals who are active in the industry. Then there is the department of "Patents." The inventors who have patented anything worth having are generally in the market for builders of their inventions. These three departments afford a means of securing business and we have seen as many as 30 letters in a few days' mail to an inventor of a new core oven whose invention had been described in our columns.

The next important department of THE METAL INDUSTRY is "Trade News," which accurately tells the trade developments of the metal industry. This is important information which, if followed up, will frequently lead to business, as many of our readers who take the pains to read this department carefully will tell.

Finally there are the pages of "Trade Wants," including "Metals, Machinery and Supplies For Sale," "Metals, Machinery and Supplies Wanted," "Opportunities" and "Inquiries." This department is a constant exchange for those who want something and those who have it, and is in fact a regular clearing house for the wants of the metal industry. This also includes "Situations Open" and "Situations Wanted," which is of vital importance to every factory.

In this outline of our special departments we have not mentioned the display and directory advertising pages which make very instructive reading for those who buy or wish to familiarize themselves with the producers of and dealers in the metals, machinery and supplies which are needed in conducting a metal industry business.

CRITICISM AND COMMENT

WE CORDIALLY INVITE READERS' OPINIONS AND CRITICISMS OF ALL ARTICLES PUBLISHED IN THE METAL INDUSTRY. SUGGESTIONS WELCOME.

COST SYSTEM FOR SMALL JOBBING BRASS FOUNDRY.

To the Editor of THE METAL INDUSTRY:

Commenting on the simple and ingenious "Cost System for Small Jobbing Foundry," by "T. H.," in your May issue, will say that as an "operating report" it could hardly be improved, and is a splendid illustration on a small scale of the principles of such reports as applied to larger industries, though naturally these have usually more sub-divisions, sometimes using sheets several feet across to accommodate the numerous volumes and equally naturally on account of their immense number of details. These are not kept perpetually posted, but are summarized at stated intervals.

T. H.'s remarks on the causes of failures are also applicable to larger concerns, and many similar accounting principles to their own business with decided advantage.

Speaking of the plan as a "Cost System" is apt to be misleading from the ordinary interpretation of this term, although as determining the average cost per pound of entire output of plant, this term is correct; and if business is done on a flat pound-rate basis, would serve all purposes.

The trouble with most jobbing foundries, as well as with other manufacturers, is a lack of knowledge of the costs of individual orders filled. Of course, it is well understood that some articles cost much more per pound to produce than others, and should business run largely to this class of work, using the average cost per pound basis as a charging price, would cause considerable loss; on the other hand, much business might be refused that would be profitably handled for much less than the average pound rate.

The questions that the usual "Cost System" is devised to answer are such as: How much did we make, or lose, on the 751 pounds, 8 ounces, furnished Harold & Co., for $195.31? Or mow did we come out on that job for Ed. Bome?

It is fully as important for the small foundry to be able to answer these questions as for the larger manufacturer,' and the author of such a complete summary statement, no doubt, has equally simple and effective means of answering them.

My only criticism is a request for more details along these lines, which I am sure would prove equally valuable and logical supplement to what "T. H." has already furnished.

COST EXPERT.

May 27, 1908.

A NEW METALLIC MIRROR FOR SEARCHLIGHTS.

To the Editor of THE METAL INDUSTRY:

Ever since the introduction of searchlights for battleships, attempts have been made from time to time to substitute metallic mirrors in place of glass ones, which are unsatisfactory from the fact of their being so readily broken by concussion when firing the guns and that the silvering at the back of the mirrors is very liable to blister and leave the surface of the glass. The difficulty of making true parabolic mirrors has been overcome by The Cowper-Coles Electrolytic Process, which, briefly, consists of depositing, by chemical means, on the convex side of a glass form or mold a thin silver film and then spinning the former in an electrolytic cell charged with copper nodules and a copper electrolyte so as to deposit the copper on the silver surface, the process being continued until the silver film has received a sufficient thickness of copper to give the desired rigidity to the parobolic mirror. The glass mold and the electro deposit are then removed from the depositing cell and placed in a vessel containing cold water, the temperature of which is gradually raised until the expansion of the copper is sufficient to cause the metallic mirror thus produced to leave the glass former. The silver faced mirror thus produced has as highly polished a surface as glass and it is finally subjected to an after treatment to prevent the silver from tarnishing. It is then mounted in a metallic ring (which fits in the projector case) provided with knife edges which firmly grip the edge of the mirror without distorting it. A large number of mirrors made by this process have been supplied to the British Government, some of which were sent out to the South African War.

Mr. Cowper-Coles is now introducing a new metallic mirror which is only partially made by electrodeposition. The mirror has a surface composed of alternate bands of rings of gold and white reflecting surfaces which it is claimed give a more penetrating beam of light both at night and in foggy weather. Objects on which such a beam of light is thrown stand out in greater relief than in a light thrown from a silver white metal mirror and the intensity of the light is so great that it is impossible to aim accurately at the projector.

Another advantage of the new mirrors is that they are not fractured by concussion and even when penetrated by bullets the area of distortion is very small.

London, May 25, 1908. S. C. C.

NEW BOOKS

THE METALLIC ALLOYS. Guide for the manufacture of all kinds of alloys, amalgams and solders, together with their chemical and physical properties, and their application in the arts and industries; with an appendix on coloring and recovery of waste metals. By William T. Brannt. 8vo. 577 pages. 45 engravings. Price, $5.00. Henry Carey Baird & Co., publishers.

The third edition of this well-known work, which is now presented, has been thoroughly revised and brought up to date. While no essential portions of the other editions have been omitted, considerable new matter, including the composition of a number of new alloys, has been added, and some portions have been entirely rewritten. Separate chapters are devoted to the alloys of copper, tin, nickel, aluminum, lead, cadmium, bismuth, silver, gold, platinum and mercury. The third chapter deals with the special properties of metals, while the fourth considers the general properties of alloys, and the changes which certain metals undergo by melting together or alloying. One chapter is devoted to solders and soldering, and covers the subject most thoroughly. An appendix provides for the coloring of alloys and the recovery of waste metals.

CORRESPONDENCE

IN THIS DEPARTMENT WE WILL ANSWER QUESTIONS RELATING TO THE NON-FERROUS METALS AND ALLOYS. ADDRESS THE METAL INDUSTRY, 61 BEEKMAN STREET, NEW YORK.

METALLURGICAL.

Q.—In the hot galvanizing process where the zinc is melted in an iron pot and the articles dipped in the molten zinc, do you know of anything that will keep the zinc from forming a sort of a freezing or pasty mixture. In our case there may be 4 or 5 inches of zinc on top and the remaining 8 to 10 inches would be in the form of a paste.

A.—In the hot galvanizing process it is impossible to prevent the formation of dross. It should be removed from the bottom of the pot by means of a perforated iron spoon or shovel, from time to time. The amount formed may be kept very low by using a pyrometer in the pot and never allowing the zinc to get very hot. The addition of a few thousandths per cent. of aluminum is also very beneficial. It is best added by making an alloy of 98 per cent. zinc and 2 per cent. aluminum and casting this into sticks of the shape of bar solder. One of these sticks is thrown into the galvanizing pot occasionally and it makes the zinc much more fluid and the galvanized articles show a brighter surface than when no aluminum is used.—J. L. J.

Q.—(1) To what extent does the tensile strength of a No. 60 Fourdrinier wire, woven out of .009-inch diameter low brass wire containing 82 per cent. lake copper and 18 per cent. good grade of spelter, the wire cloth containing 56 wires in each inch of warp and 42 wires in each of woof, depreciate on account of crystalization of the metal due to mechanical agitation when the wire cloth is traveling in an endless belt over brass rolls at the rate of 400 lineal feet per minute? The working life of such a wire on newspaper is about 3 weeks. (2) Can you tell me where or at what diameter is the fatigue point of low brass 82 per cent. copper and 18 per cent. spelter, so-called a 4½ to 1 mixture, when same is being drawn from a ¼-inch rod to a less diameter? At this point it must be soft annealed again, then how much finer can it be drawn before the fatigue point is reached, etc., to .0075? In order words, how many times should such a mixture be annealed in drawing from ¼ rod to .0075 inch diameter in order to get the greatest amount of ductility and tensile strength that is possible for this mixture to show at .0075 annealed soft?

A.—(1) We do not know to what extent the tensile strength depreciates due to the mechanical movement alone. (2) In drawing the wire the best practice is as follows:

¼	to .080	and	then	anneal
.080	" .030	"	"	"
.030	" .019	"	"	"
.019	" .0075	"	"	"

Some makers draw from .030 to the finished size without annealing, but it is claimed that the best results are obtained by annealing once between .030 and the finished sizes.—A. W. L.

Q.—We have a furnace for melting down tin dross. It consists of an inclined plane with a spout at the bottom, and below this a fire box. The fire is built in the fire box and the heat goes over the metal on the incline and thence up to the flue. We find that it is not possible to get all the metal out in using this furnace. Is there any flux we could use that would make the metal run down? We also have a lot of dross, or buffings and grindings which come from our blowers, and which consists of emery, wood steel and britannia metal which we have tried to melt out in this furnace and have failed.

A.—The drosses in question were duly received and the sample marked "1" was reduced to the metallic state and gave a plastic, high melting alloy, containing considerable copper and antimony. It is the hardener part of the britannia metal and it is evident that the furnace used is not properly constructed for a reducing furnace. It may be a satisfactory sweating furnace, but it is not capable of reducing the oxides and dross to the metallic state, and then melting same. Possibly it could be remodeled so as to give better results.—J. L. J.

Q.—In attempting to cast a rolling ingot of aluminum 12 inches square and 1 inch thick, pouring the metal to one side of the form, we are troubled by the ingot cracking even after the mold is warmed. As the crack seems to have a definite location, we think perhaps the defect is caused by some fault in the construction of the mold and not to the heating or pouring of the metal.

A.—You do not say whether you are trying to use scrap sheet aluminum or not. This cannot be done successfully as some of the aluminum oxidizes and remains entangled in the metal, causing lack of cohesion in its particles and subsequent cracking when it is rolled. If you are using ingot aluminum it is possible that you may have obtained by mistake a lot of the grade used in steel castings. This kind of aluminum often contains enough iron and silicon to prevent its rolling. Try forging one of the ingots before melting up and pouring into 2 inch square by 1 inch thick cake. The ingot molds may be covered with iron covers to insure a more uniform cooling of the ingots.—J. L. J.

Q.—We have some trouble with the casting of a handle, sample of which we are sending you. We do our molding with a molding machine, and our melting with natural gas furnaces. The handles seem to be porous at the gate ends. We use the following mixture:

Copper	84 parts.
Zinc	16 "
Lead	6 "

A.—The sample casting contained a large shrink hole near the gate end. As it is probably not possible to cut a large enough gate to the casting at this point, on account of its shape, to prevent the shrink holes, resort must be had to a shrink or feeding ball which is an enlargement of the gate placed as near the casting as is safe. This will keep the gate open until the casting is fed. The mixture you use is all right for this class of work.—J. L. J.

Q.—We have a customer requiring castings made that will expand so as to be larger than the pattern. The concern makes stoves.

A.—Stove foundries usually make a master pattern in wood and from this the cast iron pattern is made and finished. An alloy of tin 55 pounds and zinc 45 pounds has little shrinkage. Adding a few pounds of bismuth or cadmium to this alloy lowers its melting point so much that you can pour it at a low temperature; and the shrinkage is so little in the castings as to be negligible. Pouring at a high heat always increases the shrinkage of any alloy.—J. L. J.

Q.—We want to know how to refine lead sediment which comes from lead storage batteries. We understand there is more or less sulphuric acid mixed with it. Kindly advise us whether there are any fluxes for the same as we have a refining furnace in our works.

A.—Soda ash is the best flux for the lead sediment referred to. Any sulphuric acid would be neutralized by the soda ash, forming sulphate of soda (salt cake) which is also a good flux. A small amount of pearlash will increase the fluidity of the flux.—J. L. J.

MECHANICAL

Q.—I am told that in spinning up table hollowware over a form, it is necessary, as the work goes along, to hammer the article all over and then anneal it. What good does the hammering do?

A.—The article being spun, having to go through several operations, is placed on a steel stake of the desired shape it has just gone through, and hammered for three reasons:

First.—To set the metal.

Second.—Make the surface and thickness even and regular to the shape of the stake, and

Third.—To obtain an even strain all over before annealing.—E. W.

CHEMICAL

Q.—I would like a formula for stripping gold from brass and other metals.

A.—Prepare a strong solution of cyanide of potassium in warm water and arrange as a small plating bath, using the articles as anodes and supported on the centre poles. To the outside poles connect plates of sheet iron. With a good, strong current the gold should be stripped very rapidly from the surfaces.—C. P.

Q.—I want a brush black brass finish.

A.—On page 206, October, 1907, issue of THE METAL INDUSTRY you will find an article entitled "The Parabola or Smoked Black Finish," which describes the same method as that employed by the firm you mention. This process gives the brush brass finish with a bright black.—C. P.

Q.—We are desirous of finishing iron bedsteads in what is called the oxidize finish.

A.—To produce a natural oxidized finish it would be necessary to copper plate the different parts that go to make up a bedstead, then oxidize the surface with a solution of liver of sulphur. Then remove the oxide in spots to show copper and afterwards lacquer. Looking over oxidized iron bedsteads in New York city we find the following method has been pursued to produce this imitation: A flat brownish-black paint has been applied to the whole surface. When thoroughly dry copper bronze mixed with bronzing liquid, thinned with turpentine, has been applied with a piece of felt, a sash tool, or rags. The spots are made uneven to imitate the method used in oxidizing chandeliers, etc. Afterwards the whole surface is gone over with turpentine copal varnish; this gives the imitation metallic lustre. C. P.

Q.—Kindly publish a formula for making a cheap rose gold finish on small brass goods.

A.—To produce a cheap rose gold finish on brass the articles should be coppered for a few minutes in an acid copper bath consisting of

Sulphate of copper.....	1½	lbs.
Oil of vitriol	4	ozs.
Water	1	gal.

Use copper anodes and a weak current. After a dead lustre has been produced, brighten up the high lights with a little silver sand, and then gild in the following bath:

Cyanide .....,	1	oz.
Chloride of gold	7½	dwts.
Yellow prussiate of potash....	¼	oz.
Sal ammoniac	1	dwt.
Water	1	gal.

18 karat anodes should be used with this bath and a temperature of at least 180 degrees.—C. P.

Q.—We would like a formula for a statuary bronze finish. We send sample.

Q.—To produce a statuary bronze per sample proceed as follows: The articles should be acid dipped, leaving the sand surface as intact as possible. They should then be immersed in a hot solution of sulphuret of potassium and ammonia consisting of 2 ounces of the former and 1 ounce of the latter to each gallon of hot water, maintained near the boiling point. Immerse the articles for a few seconds or until they are brownish black. Remove, wash and immerse in a dilute solution of muriatic acid, 1 acid to 20 of water; this will set the color. Now dry out and scratch brush dry. Again pass the articles rapidly through the solution. Do not again brush but dry out and sand blast to produce the desired tone; then lacquer with the usual transparent lacquer. The sample we return is the color produced by this method and lacquered; not having a sand blast we are unable to produce the dead effect.—C. P.

Q.—We want a formula for a 50-gallon either hot or cold silver plating solution. We have a quantity of belts, buckles, etc., we want to flush straight over without scratch brushing so as to retain all the color from the polishing—in fact the work must go from the polishing spindle to the vat, from there to the finishing. Better still if it can be done without finishing. Is iodide of potassium of any use? If so, in what proportion?

A.—For your purpose no good would result from the use of iodide of potassium. You are no doubt familiar with bisulphide of carbon; nothing better has ever been discovered for a brightener in silver baths. To produce a cheap high lustre with the use of very little silver, or as we call it in the United States, a flash, proceed as follows: Prepare a striking solution containing about ¼ ounce silver, 6 ounces cyanide to each gallon of water. A few

drops of bisulphide of carbon in solution of cyanide may be added. If possible to use some of your old silver baths so much the better. The solution should be used warm, about 100 degrees will be sufficient. Now prepare your buckles with as high a lustre as possible. Cleanse in your usual manner and then pass through a sour water consisting of a 5 per cent. solution of muriatic acid; remove and wash. A fairly strong current of 3 or 4 volts pressure should be used and should always be turned on so the articles may make connection as soon as immersed. A frame should be used so that from ¼ to ½ gross can be silvered at one time. One-half minute deposit should be sufficient. Disconnect and hold in the solution for about the same length of time; then remove, wash, and dry out carefully. The lustre should be intact. Now prepare a small buff, or bob as you term them, made up from canton wool on one side. Run at about 1,000 revolutions per minute, using a little finely powdered rouge and alcohol or lamp black mixed with kerosene, or lamp oil as you call it, and go over the buckles very carefully. With care you will be able to produce a lustre with a burnish finish and the amount of silver used will be infinitesimal.—C. P.

Q.—I am having trouble with my nickel solution which is running very dark; what I want is a white nickel.

A.—The trouble with your nickel solution may arise from two or three causes; alkalinity, insufficient nickel in the solution, or poor conductivity. To overcome these add 2 ounces single sulphate of nickel and 3 ounces common salt to each gallon of solution; this addition should give you a good white deposit. If you wish to prepare a new nickel bath use the following formula:

Double nickel salts	7 ozs.
Single sulphate nickel	1 oz.
Common salt	1 oz.
Water	1 gal.

To this add 2 ounces boracic acid to each 10 gallons of the solution.—C. P.

Q.—We would like an acid copper solution for depositing the same as silver on fountain pens.

A.—For an acid copper solution for your purpose dissolve 1½ pounds sulphate of copper in each gallon of water, preferably boiling. When cool add to each gallon of the solution 4 ounces commercial oil of vitriol, and to each 5 gallons of solution add ¼ ounce yellow dextrine.—C. P.

Q.—I want the best solution for copper plating lead.

A.—For coppering lead in an alkaline solution we recommend the following:

Cyanide of potassium, C. P.	6 ozs.
Sulphite copper, or red copper compound	2 ozs.
Bisulphite soda	2 ozs.
Water	1 gal.

To prepare the bath dissolve the cyanide in 1 pint of the water, using it cold, then add the copper compound. Dissolve the bisulphite of soda in the balance of the water and mix thoroughly; the solution is now ready for use. For heavy deposits the work should be plated in this bath for 10 or 15 minutes and then finished in the regular acid copper solution.—C. P.

Q.—Enclosed find sample of what we've been up against in the shape of pitted work. We have heard of a dozen reasons for this and have tried twice that number of cures and we are still unable to say positively what causes it or what will stop it.

A.—The cause of the pitting of the nickel surface is due to occluded hydrogen—that is, the hydrogen formed in the solution does not rise sufficiently from the surface of the metal, but condenses and practically burns into the nickel. This occurs mostly when the solution becomes slightly deficient in nickel, or when constantly adding the double salt the trouble is caused by an excess of ammonia sulphate. The best remedy is to use only the single sulphate of nickel for your class of work, thus avoiding an excess of ammonia sulphate. Currents of air forced by pressure into the solution or very slight motion of the cathode rods will also help to overcome the defect. Let us hear how you get along.—C. P.

Q.—Can you advise me of a method of protecting aluminum alloys, about 95 per cent. aluminum and 5 per cent. copper, against tarnishing in sea water spray? Can such alloys be plated with other metals?

A.—The best method for you to pursue would be to coat the surface with one or two coats of transparent collodion lacquer; this will resist all atmospheric influence, and also acids and chlorides. Unless you are practical in depositing metals you will find some difficulty in coating aluminum with other metals. This can be done, but it is not a commercial success.—C. P.

Q.—Please give me a good formula for coppering by immersion—one that will give good results on iron and britannia metal.

A.—For coppering articles of iron or steel by simple immersion use the following formula:

Sulphate of copper	3½ ozs.
Oil of vitriol	3 ozs.
Water	5 gals.

Cleanse the articles thoroughly, immerse for a few seconds, wash and dry out well. The solution is used cold. For coppering britannia metal the same solution may be used, but it will be necessary to place your articles in baskets made from iron wire; this is called the contact method. These solutions are only used upon a cheap grade of work.—C. P.

Q.—We would like a formula for 14 karat gold plate.

A.—Reduce 1 ounce fine gold to chloride or use 2½ ounces commercially pure chloride of gold. Add this to 3 gallons of water containing 10 ounces of cyanide of potassium and 5 ounces carbonate of soda. The solution should be used at from 160 to 180 degrees. After preparing the solution add the following: ½ ounce carbonate of copper and 1 teaspoonful of aqua ammonia dissolved in 1 ounce cyanide of potassium and 8 ounces of water. The anode should be 14 karat alloyed with silver and copper. Use a current strength of 4 to 6 volts.—C. P.

Q.—Can electro galvanizing be plated smooth enough for buffing—that is, is it the same as copper or nickel plating upon polished steel? If so can the article be nickel plated afterward?

A.—With care electro deposits of zinc are smooth as any other deposit and can be polished in the manner usual for nickel. Zinc can only be plated with nickel direct by a special solution for the purpose. Those made up from the nickel chloride and ammonium chloride give best results. In the regular bath of sulphate of nickel and ammonia zinc becomes discolored, turning brown or black, unless a powerful current is used.—C. P.

Associations and Societies

REPORTS OF THE PROCEEDINGS OF THE METAL TRADES ORGANIZATIONS.

THE AMERICAN BRASS FOUNDERS' ASSOCIATION.

This Association is now only entering its second year, and yet, judging by the convention just held in Toronto, it has already attained a healthy growth and has taken its place among societies which have influence toward the betterment of industrial conditions. It now has a membership of some 160, all of whom have paid their dues and may, therefore, be taken as feeling an active interest in the workings of the Association. The general proceedings of the Association and the list of officers elected for the ensuing year will be found on the first and succeeding pages of this issue.

LIST OF MEMBERS.

Abate, W. L., Genl. Supt. Nathan Mfg. Co., 416 E. 106th St., New York, N. Y.
Adams & Westlake Co., 110 Ontario St., Chicago, Ill.
Allan, Andrew, Jr., 486 Greenwich St., New York, N. Y.
Allan, Percy, Sec'y Jenkins Mfg. Co., Bloomfield, N. J.
Allen, W. D. Mfg. Co., 151 Lake St., Chicago, Ills.
Allyne Brass Foundry Co., Detroit, Mich.
Antisell, F. L., Raritan Copper Works, Perth Amboy, N. J.
Ashcroft Mfg. Co., Bridgeport, Conn.
Ajax Metal Co., 46 Richmond St., Philadelphia, Pa.

Barnett Foundry Co., Oscar, P. O. Box 24, Newark, N. J.
Barr, Wm. H., Genl. Mgr. Lumen Bearing Co., Buffalo, N. Y.
Bell, Wm. H., 281 Lafond St., St. Paul, Minn.
Besly, Chas. H. Co., 15 So. Clinton St., Chicago, Ills.
Best, Wm. Newton, 229 Ryerson St., Brooklyn, N. Y.
Brady Brass Co., 95 Liberty St., New York, N. Y.
Brass Founders' Supply Co., 20-34 Prospect St., Newark, N. J.
Bridgeport Deoxidized Bronze & Metal Co., Bridgeport, Conn.

Caley, Chas. J., Genl. Mgr. Russell & Erwin Mfg. Co., New Britain, Conn.
Callender, Jas. H., Arlington, N. J.
Cameron Steam Pump Works, The A. S., Ft. E. 23rd St., New York, N. Y.
Chamberlin, F. H., Pres. J. D. Smith Foundry Supply Co., Cleveland, O.
Chapman, J. B. & Co., Springfield, Mass.
Cleal, Joseph P., 126 Wellington St., W., Toronto, Canada.
Climax Specialty Co., Seneca Falls, N. Y.
Clum & Atkinson, 575 Lyell Ave., Rochester, N. Y.
Coleman, F. A., 1846 Scranton Road, Cleveland, O.
Corbin, P. & F., New Britain, Conn.
Cox Brass Mfg. Co., Pearl & Van Woert Sts., Albany, N. Y.
Craig, J. M., 71 Arch St., Hartford, Conn.
Cramp, C. D., Beach & Ball Sts., Philadelphia, Pa.
Crescent Mfg. Co., Scottdale, Pa.
Crist, W. E., Chittenango, N. Y.

Damascus Bronze Co., South Ave. & Sturgeon Sts., Allegheny, Pa.
Davis Price Foundry & Mach. Co., New Cumberland, W. Va.
Detroit Lubricator Co., Detroit, Mich.
Dings Electro-Magnetic Separator Co., 675 Smith St., Milwaukee, Wis.
Dixon Crucible Co., Jos., Jersey City, N. J.
Doeright, G. A., Pres. The Falcon Bronze Co., Youngstown, O.
Dreyfus, Harry, 29th St. & 11th Ave., New York, N. Y.
Duffy, Philip, P. O. Box 817, Lockport, Ills.

Empire Mfg. Co., London, Ont., Canada.
Evans, Thos., Treas. Eynon-Evans Mfg. Co., 15th & Clearfield Sts., Philadelphia, Pa.

Fairlie, Andrew M., P. O. Box 197, Copperhill, Tenn.
Foundry, The, Cleveland, O.
Freysinger, John B., 550 Dixwell Ave., New Haven, Conn.

Gamble, J. N., Kewanee, Ills.
Gautier, J. H. & Co., Jersey City, N. J.
General Fire Extinguisher Co., Providence, R. I.
Grand Rapids Brass Co., 156 Court St., Grand Rapids, Mich.
Great Western Smelting & Refining Co., 179 W. Kinzie St., Chicago, Ills.
Gutsche, J. A., 682 E. 102nd St., Cleveland, O.

Haasis, A. L., Jos. Dixon Crucible Co., Jersey City, N. J.
Haines, Jones, & Cadbury, Inc., 1136 Ridge Ave., Philadelphia, Pa.
Hanner, Edward, Johnsonburg, Pa.
Hartman, Wm. T., New Britain, Conn.
Hazard, Coates & Bennett Co., Rochester, N. Y.
Homer Brass Works, Water & Miffley Sts., Philadelphia, Pa.
Howe, Jeremiah, Supt. Michigan Copper & Brass Co., Detroit, Mich.
Hunt, David, Jr., Warner & Swasey Co., Cleveland, O.

Iron Age, The, 14 Park Place, New York, N. Y.
Ivins Tube Works, Ellwood, Oak Lane Station, Philadelphia, Pa.

Johnson Service Co., Milwaukee, Wis.

Kasjens, Jacob J., Brass Foundry & Heating Co., Peoria, Ills.
Kinsley, Henry L., 149 Broadway, New York, N. Y.

Landers, Frary & Clark, New Britain, Conn.
Lane, Henry M., Sec'y The Foundry Supply Asso., Cleveland, O.
Lawrenceville Bronze Co., 31st & Penn Ave., Pittsburg, Pa.
Lebherz, John, Niagara Falls, N. Y.
Little, Arthur D., 93 Broad St., Boston, Mass.
Lonergan, John E., 211 Race St., Philadelphia, Pa.
Lumen Bearing Co., 1155 Sycamore St., Buffalo, N. Y.

Mack, J. W., P. O. Box 1688, New York, N. Y.
Maryland Steel Co., Sparrows Point, Md.
McConnell, D. A., 365 Market St., Newark, N. J.
McDonald & Morrison Mfg. Co., The A. Y., Dubuque, Iowa.
McGarvey, Joseph, Speakman Supply & Pipe Co., Wilmington, Del.
Meadowcroft, J. R., Mgr. The Garth Co., 26 Craig St., W., Montreal, Can.
Merriam, Edmund A., Treas. Turner & Seymour Mfg. Co., Torrington, Conn.
Metal Industry, The, 61 Beekman St., New York, N. Y.
Mitchell, The Robt. Co., Montreal, Can.
Moldenke, Richard, Dr., Watchung, N. J.
Morrison Brass Mfg. Co., The Jas., 81 St. George St., Toronto, Canada.
Mousette, O. J., Driggs Ave. cor. N. 10th St., Brooklyn, N. Y.
Mueller, Philip, H. Mueller Mfg. Co., Decatur, Ills.
Mumford Co., The E. H., 1223 Spring St. Philadelphia, Pa.
Murphy, M. F., Genl. Supervisor Amer. Locomotive Co., Schenectady, N. Y.

Nathan, Alfred, P. O. Box 1688, New York, N. Y.
Neville, W. E., 1322 Callowhill St., Philadelphia, Pa.
North & Judd Mfg. Co., New Britain, Conn.

Oberdorfer Brass Co., M. L., Syracuse, N. Y.
Ohio Brass Co., Mansfield, Ohio.

Park, W. R., 23 Watson St., Boston, Mass.
Patch, N. K. B., Mgr. Lumen Bearing Co., Toronto Junction, Canada.
Peerless Heater & Valve Co., Flint, Mich.
Penberthy Injector Co., Detroit, Mich.
Phipps, Robt., Niagara Falls, N. Y.
Pittsburg Brass Mfg. Co., 3155 Penn Ave., Pittsburg, Pa.
Pittsburg Motor Co., P. O. Box 252, E. Pittsburg, Pa.
Porter, W. A., 59 E. Richmond St., Toronto, Canada.
Powell Co., The Wm., Cincinnati, O.
Pridmore, Henry E., 19th & Rockwell Sts., Chicago, Ills.
Proctor, Chas. H., 621 Chestnut St., Arlington, N. J.

Quigley, W. S., Rockwell Furnace Co., 26 Cortlandt St., New York, N. Y.

Regester, E. C., J. Regester Sons Co., Baltimore, Md.
Reilly, Martin J., 114 West St., Brooklyn, N. Y.
Renneberg, Chas., McNab & Harlin Mfg. Co., Paterson, N. J.
Richardson, Edro, 318 No. Holliday St., Baltimore, Md.
Richardson, Horace, Taunton Crucible Co., Taunton, Mass.
Ross-Tacony Crucible Co., Tacony-Philadelphia, Pa.
Russell & Erwin Mfg. Co., New Britain, Conn

Schilling, Joseph, Supt. Russell & Erwin Mfg. Co., New Britain, Conn.
Schneider, Emil 298 South St., Newark, N. J.
Schnell, Fred, 501 Fourth St., Buffalo, N. Y.
Schutz, J. H., H. Mueller Mfg. Co., Decatur, Ills.
Seymour Mfg. Co., Seymour, Conn.
Sheeler, J. H., 811 Fairmount Ave., Philadelphia, Pa.
Sherman, H. B., Battle Creek, Mich.
Smith, Wm. A., 112 Greenpoint Ave., Brooklyn, N. Y.
Somerville, Ltd., 59 Richmond St., E., Toronto, Canada.
Speakman, Willard A., Speakman Supply & Pipe Co., Wilmington, Del.
Squires, J. D., Mgr. The Lyman Mfg. Co., Buffalo, N. Y.
Standard Sanitary Mfg. Co., Louisville, Ky.
Sterling Smelting Co., 48 Greenpoint Ave., Brooklyn, N. Y.
Superior Brass Foundry, Larium, Mich.

Tallman, A. H., 72 Wellington St., N., Hamilton, Canada.
Tampa Foundry & Machine Co., Tampa, Fla.
Taylor, Uriah, 86 Paterson Ave., Paterson, N. J.
Thompson, Hugh L., Waterbury, Conn.
Toothe, Edward S., 85 Liberty St., New York, N. Y.
Trenton Brass & Machine Co., Trenton, N. J.

Union Brass & Metal Mfg. Co., St. Paul, Minn.

Vulcan Louisville Smelting Co., First Natl. Bank Bldg., Chicago, Ills.

Wakefield, F. W., Vermilion, O.
Walters, Geo. W., Dent Hardware Co., Fullerton, Pa.
Walworth Mfg. Co., First & O Sts., South Boston, Mass.
Warner, A. H., E. Stebbins Mfg. Co., Springfield, Mass.
Webster, Wm. R., Genl. Supt. Bridgeport Brass Co., Bridgeport, Conn.
Whiting Foundry Equipment Co., Harvey, Ills.
Wiesing, Geo. F., Sayre Stamping Co., Sayre, Pa.
Wilson, Wm. L., U. S. Aluminum Co., Pittsburg, Pa.
Wolverine Brass Works, Grand Rapids, Mich.
Woodbridge, Murray, 69 Stirling Road, Toronto, Canada.
Wright, Granville W., Reading, Pa.

Yale & Towne Mfg. Co., Stamford, Conn.

AMERICAN FOUNDRYMEN'S ASSOCIATION.

The convention just ended, June 8-12, at Toronto, was the most interesting and valuable meeting yet held by this Association. During the four days some 25 papers were read, and reports of several committees received. These covered foundry practice in all its phases, and, taken in connection with the magnificent display presented by the Foundry Supply Association, formed an educational treat of the greatest possible value. The attendance was 1,425, the largest of any convention.

The following officers were elected for the coming year: President, L. L. Anthes, Toronto; vice-presidents, F. B. Farnsworth, New Haven, Conn.; William H. Parry, Brooklyn, N. Y.; R. E. Field, Pittsburg, Pa.; J. W. Jeffrey, Columbus, O.; Samuel J. Johnson, Chicago, Ill.; T. W. Sheriffs, Milwaukee, Wis.; J. W. Kissick, Columbus, O.; R. J. Cluff, Toronto, Canada; secretary-treasurer, Dr. Richard Moldenke, Watchung, N. Y.

Dr. Moldenke's report was in part as follows:

Perhaps no one thing has stimulated the educational movement in the foundry industry as much as the magnificent exhibition of foundry machinery and appliances at the Philadelphia Convention held last year. Foundrymen are waking up to the fact that they must re-equip their plants to meet modern conditions, and the creation of these modern conditions is directly traceable to the work of our Association. But for the dissemination of information on such subjects as the molding machine, the technical and scientific management of mixtures and melting, and other items of progress, the industry would not be where it is to-day.

We should therefore encourage the efforts of our allied Supply Association and urge the individual manufacturers to continue to improve their product, so that the foundry industry of America may hold its place as the first in the world.

That foundry progress is firmly established now can be seen from the flood of inquiries received at the secretary's office asking information on every conceivable phase of the art of founding metals. In a number of instances foundry owners have brought their troublesome castings with them to New York to go over the situation with us, and, it is hoped, derived benefit therefrom.

Your president will tell you of the effort made in raising a special fund for more effective studies to be made along the lines of important foundry problems; and your secretary is pleased to report that already two items of research work have been carried along sufficiently to report, and a third is well under way. These are the studies with vanadium in cast iron, recently published in the transactions, and the use of titanium, similarly, presented at this convention.

The study of molding sands is now far enough under way, as far as the gathering and preparation of the 50 odd samples is concerned, to indicate some very interesting results ahead. These sands were kindly donated to the Association in sufficient quantity to make the experiments worth while.

At the present time there are 715 members, which shows a gratifying increase over last year.

The total income last year was $2,816 and the expenses $2,490, leaving a balance in the treasury of $325. The special fund for research work now amounts to $885.

FOUNDRY SUPPLY ASSOCIATION.

This association, at a meeting held in the King Edward Hotel, Toronto, Canada, during the recent convention, June 11, elected the following officers:

President, F. N. Perkins, Arcade Manufacturing Company, Freeport, Ill.; vice-presidents, John Hill. Hill & Griffith Company, Cincinnati, Ohio; E. J. Woodison, Detroit Foundry Supply Company, Detroit, Mich.; T. W. Pangborn, of Thomas W. Pangborn Company, New York, N. Y.; George H. Wadsworth, Falls Rivet & Machine Company, Cuyahoga Falls, Ohio; secretary, Henry M. Lane, Cleveland, Ohio; treasurer, J. S. McCormick, of J. S. McCormick Company, Pittsburg, Pa.; trustees (three years), J. S. Rayner, Carborundum Company, Niagara Falls, N. Y.; J. S. Smith, of J. D. Smith Foundry Supply Company, Cleveland, Ohio; A. O. Backert, Cleveland, Ohio.

E. H. Mumford, of The E. H. Mumford Company, Philadelphia, and J. H. Whiting, of the Whiting Foundry Equipment Company, Harvey, Ill., were appointed to the Trustee Board to fill the places vacated owing to the election of Mr. Perkins to the presidency and Mr. Woodison to the vice-presidency.

The present convention, in point of numbers in attendance, in the extent and variety of the exhibits, in the interest manifested, and in the general good feeling shown throughout, is far in excess of any convention ever held by the associations taking part.

An examination of the exhibits in both the Process Building and and the Machinery Building, showed that foundry practice in all its branches and phases had been most thoroughly covered. It would have been difficult to have found a step in the molding of a pattern or the casting of a piece that was not especially covered by some appliance or material especially adapted to the work. Materials and supplies were housed in the Process Building, the moving exhibits, or those which required power for their operation, being in the Machinery Building. One thing was rather unusual; the exhibits were numerous and exceedingly varied in character, but they all pertained to foundry work; there were no irrelevant materials or appliances shown. All had a bearing on the work to be done, and that work was the production of castings.

A novel feature, first introduced at this convention, was the provision of melted iron, which was free to all who had need of it, and which was particularly appreciated by the molding machine men who were greedy of the opportunity to show that their molds were creations of sand that would stand melted metal such as could be found in any foundry. It is to be hoped that at the next convention, in Cincinnati, there will not only be a cupola for the melting of iron, but also a fuel or crucible

melting furnace for the production of brass castings. This we have no doubt will be done since the brass interests have become, within the last year, of sufficient account to make it worth while to look twice toward their especial business.

In our May issue we presented floor plans of the Process Building and Machinery Building, and gave a complete list of those who would have exhibits, and the character of their displays.

THE NATIONAL ASSOCIATION OF BRASS MANUFACTURERS

met at the King Edward Hotel on Tuesday and Wednesday, being the semi-annual meeting. There were about 65 delegates present from all parts of the United States. The officers of the organization are: President, C. J. Hills, of the Haydenville Co., Haydenville, Mass.; vice-president, Edward F. Neidecken, of the Hoffman & Billings Mfg. Co., of Milwaukee, Wis.; directors, Edward C. Regester, of E. C. Regester, Jones & Co., Baltimore, Md.; E. J. Seitz, Union Brass & Metal Mfg. Co., St. Paul, Minn.; H. M. Hoelster, of L. Wolff Mfg. Co., Chicago; J. W. Sharp, Jr., of Haines, Jones & Cadbury Co., Philadelphia; E. L. Strauss, Central Brass Mfg. Co., Cleveland, Ohio; Wm. M. Webster, commissioner.

Many papers were read and topics discussed of matters of interest to the trade, and also modern methods of manufacture.

Among the more important things acted upon, and one which will appeal to the Canadian Manufacturers particularly, was the amendment to the constitution, enlarging the scope of the Association so as to include or take in Canada. Heretofore the Association has not gone beyond the American borders and on previous occasions efforts to amend the constitution and enlarge the territory were not successful, but this has now been accomplished and a number of new members were taken into the organization this year, among them some Canadian manufacturers under the new and modified constitution.

The question of altering or changing the tests on brass goods was discussed and referred to a committee consisting of Messrs. Webster, Ryan and Hoelscher, with instructions to have same issued July 1st, 1909, and effective January 1, 1910, when likely the piece in lieu of the dozen lists will be used. This is left in the hands of the committees.

A special vote of thanks and appreciation was, by rising vote, extended to the Torontonians, and to Mr. Fred Somerville especially, for the very kind and hospitable and courteous treatment received while in Toronto.

The meeting after a two days' session adjourned to meet in Detroit, Mich., September 15 and 16 of this year.

ASSOCIATED FOUNDRY FOREMEN.

The Associated Foundry Foremen met in Toronto, Canada, June 8-12, for their sixth annual convention. The Secretary-Treasurer, F. C. Everitt, of Trenton, N. J., reported in part as follows:

"We have reason to feel greatly encouraged in the work of foundry education, owing to the fact that the Foundry Associations have been advancing, during the past year, with unexpected strides and we are now in position to say, with greater confidence than ever, that Technical Education in the Foundry is an assured fact.

"The mixing of metals by analysis, which has so long been studied and presented to us with the simplest of methods for calculation, is a subject with which nearly every foundry foreman in the country is now familiar. Of what help has this been to us? Let us consider. How many foundries to-day buy their iron by grades, mix by grades, and then wonder what is the matter with the iron. Do we not order and specify the analysis? Do we not mix by analysis? Can we not better tell the cause of our trouble through these methods? There certainly can be no doubt because a daily analysis of the mixture made from pig which has been analyzed before it was accepted and in conjunction with standard test bars, enables us to control the quality of the iron to within exceedingly close margins. Again we find that we are able to reduce the cost of our mixture by knowing exactly what is going into the cupola and what is coming out, whereas, with the old rule-of-thumb method, the foundryman would have thought it worth his job to reduce his pig and increase his scrap or melt up some old pig that had been received and laid aside as useless for fear the next day's heat would be worthless, while, in fact, his iron might have increased in value.

"The advancement of the moulding machine practice during the last twelve months has been almost revolutionary. No less can be said of foundry appliances in general and all of which we will find on exhibition at this convention for the education of the foundrymen and general advancement of foundry technology.

"Through what medium has all this come to us—Association, first, the American Foundryman's Association; second, the Associated Foundry Foremen; third, the Foundry Supply Association, and fourth, the American Brass Foundrymen's Association. Can the foreman realize that to-day "Association" is an essential part of his success as a foundryman? Can he realize that it is a part of his duty as a foundryman to become one of our members?

"We have at this time every reason to feel that the foundrymen are becoming thoroughly awakened to this spirit of association. We can readily recall the New York Convention, where there was an attendance of 400, at Cleveland an attendance of 800, at Philadelphia 1,500, and there is every indication to believe that the attendance this year will be 2,000.

"We have received with our own Association 101 members during the year, these representing all parts of the continent east of the Rocky Mountains and from the Gulf to Canada. Many letters from firms wanting their foremen to become members have been received and a most valuable addition through the efforts of our president, Mr. Webb, in the organization of the Tri-City Foundry Foremen's Association, representing Davenport, Iowa, Rock Island and Moline, Illinois.

"Our members will certainly be able to realize to the fullest extent the value of our work during this week, and it behooves each one of us to secure a new member before the close of another year. In addition to the favorable condition here briefly reviewed, we are pleased to present a more favorable report of our finances.

"At a meeting held June 8, the endeavor to bring the American Foundrymen's Association, the American Brass Founders' Association, the Foundry Supply Association and the Associated Foundry Foremen into closer relationship so that no effort be wasted in the advancement of foundry education, was explained. A committee composed of A. W. Loudon, W. A. Perrine, H. J. Holmes, E. W. Smith and F. C. Everitt was appointed to confer with the executives of the other associations on the matter.

The election of officers resulted as follows: President, W. S. McQuiblan, Warren, Pa.; first vice-president, J. Gaffney, Montreal, Canada; second vice-president, C. E. Hoyt, Cincinnati, O.; district vice-presidents: Erie, W. F. Grunmau; Milwaukee, Henry Biegel; Chicago, E. W. Smith; New York, D. C. Wilson; Indianapolis, W. A. Keeler; Cleveland, C. A. Olsen; Philadelphia, W. A. Perrine; Hamilton, David Reid; Cincinnati, John Logan; Montreal, M. J. Walsh; Davenport, Ia., J. F. Webb.

METAL MANUFACTURERS OF TACOMA. This is the name of an association which has been formed in Tacoma, Wash., by firms in that city working in iron, steel, brass and other metals, the object being to promote the interests of the metal trades and to investigate and adjust all differences that may arise between the different trades. Twenty-five firms, representing blacksmith, boiler, pattern and machine shops, sheet metal works and foundries have already joined the association. The following officers have been elected: President, John L. Roberts, of the Puget Sound Iron & Steel Works; first vice-president, Niven McConnell, of the McConnell Engineering & Machinery Company; second vice-president, Joseph R. Turner, of the West Coast Wagon Company; temporary secretary, John Hartman, of the Atlas Foundry; treasurer, George C. Dupea, of the Atlas Foundry & Machine Company. The association meets the first and third Fridays of each month.

DETROIT FOUNDRYMEN'S ASSOCIATION.—A number of Detroit members of the American Foudrymen's Association recently held a meeting and formed the Detroit Foundrymen's Association and elected the following officers: President, W. M. Corse, Detroit Lubricator Co.; vice-president, J. J. Wilson, Cadillac Motor Car Co.; secretary, A. P. Henry, Standard Pattern Works; treasurer, A. T. Waterfall, Russel Wheel and Foundry Co. The executive committee consists of the president and vice-president and the following: James S. Keightly, Great Lakes Engineering Works; Thomas F. Meek, Detroit Steel Casting Co.; W. T. Putnam, Detroit Testing Laboratory.

The association starts with a membership of about fifty, and from all indications will be a great success.

At the dinner tendered to Dr. Moldenke, on June 1, by the Detroit Foundrymen's Association, he addressed the organization on the subject of Malleable Cast Iron, the subject being handled in a most comprehensive and instructive manner.

The Detroit Association had a booth at the Toronto Convention and a large delegation of members interested in booming that city for the convention in 1910. We trust it may be so decided as we have all heard of Detroit and would like to verify the wonderful stories we have heard of that foundry town.

ITEMS OF INTEREST TO THE INDIVIDUAL.

William Smith, who was in the employ of F. Jeaudbeur, Jr., for the past 19 years, has started a plating and coloring business at 17 John street, N. Y. City.

C. R. Spare has accepted the vice-presidency of the American Manganese Bronze Company, 99 John street, New York City, and is located at Holmesburg, Philadelphia, as general manager of their works now in course of erection.

T. W. Buckes, a former assistant foreman in the machine room of the watch department of the Seth Thomas Clock Company, has been promoted to the place of general superintendent of the Waltham Watch Company, of Waltham, Mass., to succeed E. A. Marsh, who resigned.

The American Brass & Specialty Company, 188 East Gay street, Columbus, Ohio, manufacturers of high grade automobile specialties and brass art metal goods, have elected the following officers: Frank R. Maine, president; George F. Hill, vice-president; Willis F. Houser, secretary-treasurer, and Louis G. Parrott, general manager.

William A. Locke, the metal goods manufacturer of 100 William street, New York, has given up that business, as he has become the secretary and treasurer and general manager of the American Manganese Bronze Company, with offices at 99 John street, New York. The incorporation of the company was mentioned in the April number of THE METAL INDUSTRY.

F. A. Coleman, the newly elected president of The J. D. Smith Foundry Supply Company, is a graduate engineer of Lehigh University, class of 1892. He was engaged continuously in engineering work up to 1901; in 1901 he was made general superintendent of The Belington & Northern Railroad Company and the Valley Coal & Coke Company of West Virginia. In 1904 he took charge of the engineering department of The J. D. Smith Foundry Supply Company, and was made vice-president of the company in 1907. Mr. Coleman is a member of the American Society of Civil Engineers, a member of the American Society of Mechanical Engineers and Civil Engineers' Club of Cleveland.

DEATHS.

Frank Mauser, silversmith, with a factory at 103-109 Oliver street, Newark, N. J., died very suddenly on April 10.

George T. Matthews, of Scranton, Pa., died at his home on April 29th at 80 years of age. Mr. Matthews was born in England and at the age of 4 was brought to this country. Forty-one years ago he moved to Scranton and secured employment with the Lackawanna Steel Company in their brass department, for which he was superintendent for over 20 years. Mr. Matthews leaves a widow, one son and two daughters.

Edgar L. Logee, for many years one of the most prominent manufacturers of Masonic emblems in the country, died at his home in Providence, R. I., on April 5. He was known very generally to the jewelry trade and was a prominent Mason, being a member of St. John's Commandery, No. 1, Knights Templar; of Rhode Island Consistory, S. R. R. S.; of Palestine Temple, A. A. O. N. M. S.; of Jenks Lodge, No. 24, A. F. and A. M., of Central Falls, and Pawtucket Royal Arch Chapter.

As we go to press we learn of the death of J. S. Haselton, president of the Rome Brass and Copper Company, Rome, N. Y., and also an official and the leading spirit in the associated brass and copper industries of Rome. These included besides the company named, the Rome Tube Company, Rome Metal Company, and the Rome Novelty Works. Mr. Haselton was famous throughout the country as a tireless worker and developer of metal industries, and a man of considerable influence, particularly among the sheet copper manufacturers. Lack of particulars prevents us from saying more about him in this issue.

Joseph R. Nayler, president of the Newark Sheet Metalware Company, died at his home in Newark, N. J., on May 21. For 25 years Mr. Nayler was head chemist of Schieffelin & Company, of New York, and while holding that position discovered the curative properties of phenacetin, then manufactured in Germany, and introduced it here. Eight years ago he removed to Newark and became the head of the Metalware Company. Mr. Nayler was born in England 60 years ago and came to this country about 40 years ago. He was one of the founders of the People's Temple in Newark.

Jonathan W. Pond died at the age of 82 at his home in New Haven, Conn., on May 18. He was the last of the clockmakers that went from Terryville, being engaged by Chauncey Jerome, the famous clock manufacturer, to take charge of his New York store, and later to assist in the business at New Haven. He was born in the Pond homestead in Plymouth and was the grandson of the original settler, Jonathan Pond. Mr. Pond was best known for his services in public life, being appointed in 1861 the chief of police in the city of New Haven, the first to hold that office, served for three years as president of the board of public works of New Haven, and filled the position as deputy sheriff of New Haven county with efficiency for a period of thirty-one years.

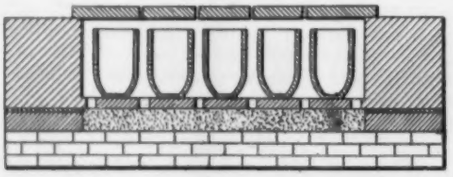
PATENTS

REVIEW OF CURRENT PATENTS OF INTEREST TO THE READERS OF THE METAL INDUSTRY.

887,467. May 12, 1908. METAL CUTTING BLOWPIPE. Cyrille Delcampe, of Bridgeport, Conn. This blowpipe, which is intended particularly for the cutting of metal, is of the oxy-acetylene type. It comprises an acetylene pipe and an oxygen pipe, the exit end of the latter being arranged within the exit end of the acetylene pipe which forms the blowpipe head. Extending through the mixing head to the extreme tip of the main nozzle is a small tube through which flows pure oxygen. By this construction the mixed acetylene and oxygen issue from the end in an annular ring and are burned to heat the metal; but in the heart of this flame is a jet of pure oxygen, which rapidly burns out the heated metal in a thin, sharply defined line, thereby making the cut. The oxygen flame has no opportunity to disburse and will make a neat and regular cut.

888,123. May 19, 1908. METAL WOOL. Alfred Shedlock, Jersey City, N. J. This patent states: "This invention is metal wool composed of an assemblage of more or less interwined or interlaced, or aggregated filaments produced in a manner in which the fibers of metal wool have not heretofore been made and which have, as metal wool filaments, characteristics never before known." The grain of the metal of which the wool is composed is parallel, or substantially so, with the lengths of the filaments; and is practically in the same condition as when the metal is in the form of rolled thin sheets. The fibers are produced by severing a rolled thin sheet of metal in lines parallel with the grain of the metal. The thickness of the filaments is the same as the thickness of the sheet metal from which they are cut, and their width is determined by the spaces between the parallel cuts.

885,745. April 28, 1908. ELECTRIC FURNACE. Paul Girod, of Ugine, France. In this furnace a number of objects, such as crucibles, may be heated. The heating chamber is approximately rectangular, with two narrow extensions, one at each end. The chamber is surrounded by insulating masonry arranged to leave a space between its inner walls and the outer walls of the



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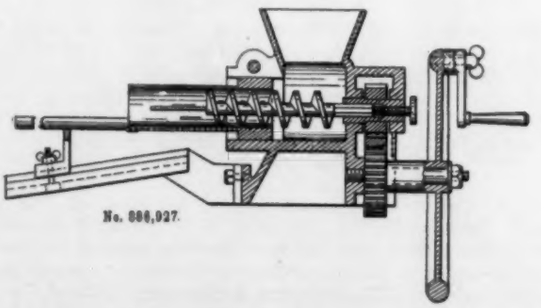
chamber. This space is filled with a resistance material. The furnace is covered with refractory plates, which can be easily removed to allow for removal of the crucibles. The resistant heating mass is arranged in such manner as to completely surround the chamber, the current being led into and out of the same side of the furnace.

869,155. October 22, 1907. METAL ENAMELING. Grace M. Banning, Chicago, Ill. This process differs from previous processes in that the enamel is applied from the rear to a sheet of perforated metal in such a manner that the enamel will be exposed, in the form of beads, through the perforations. This method of applying the enamel enables a large surface of perforated metal to be enameled without difficulty by spreading the enamel over the back surface of the metal in the form of a coat or layer. This obviates the necessity of applying a drop of enamel to each of the separate perforations and at the same time renders the completed product more perfect than could be made, by the use of ordinary care, were the enamel applied to each hole in the form of an individual drop. It is stated that the ease with which the process can be carried on, and the cheapness of the product, enable the enameled brass or other metal to be widely used under conditions which preclude the use of ordinary enameled metal.

882,110. March 17, 1908. ANODE. Albert M. Hill, of New Haven, Conn. This invention relates to a device for supporting a nickel or other anodes in a tank. Means are provided for connecting a suspension arm with the anode proper so that

the two may be easily separated and a new anode suspended whenever desired. As shown in the drawing, the supporting arm is formed on its lower end with a socket which engages an interlocking head on the anode, an effective connection being thus made between them.

886,927. May 5, 1908. CORE MAKING MACHINE. Charles H. Blau and George W. Kelly, of Columbus, Ga. This machine belongs to that class in which the cores are formed by expressing the sand through suitable dies. The sand is fed to the machine from a hopper. The core-sand is fed from the sand chamber into the die by a screw which packs it in the die. The density of the core depends upon the length of the space be-



No. 886,927.

tween the end of the packing screw and the delivery end of the die. When the length of this space is increased the frictional resistance of the sides of the die to the sand is also increased, and the core is consequently more dense. Various mixtures of sand with other materials are used to form the core-sand according to the size of the core and the use to which it is to be put, and it is very important to be able to form the cores of any prearranged density. The length of the consolidating space is varied by sliding the die in the clamp before securing it by the clamping screw. A finer adjustment of the space is obtained by means of a screw which slides the packing-screw to a limited extent in the die, and this adjustment may be effected at any time without unclamping the die.

887,415. May 12, 1908. Method of Making Sand Molds. Charles Morgan, assignor to Arcade Manufacturing Company, Freeport, Ill. Directly above the molding machine is a hopper for holding sand. This hopper is supplied by means of a conveyor which drops the sand onto a movable sieve which shifts it before it enters the hopper. The sand is dropped vertically from the hopper into the flask and upon the pattern. The sand is dropped from a height of from 8 to 10 feet, and packs so perfectly about the pattern that no tucking by hand into the lower portions is necessary. The result is that the mold can be filled to the top with finely packed sand.

887,758. May 19, 1908. Apparatus for Making Sand Cores. William D. Berry, New Brighton, Pa. This device is especially intended for making green sand cores to be used in the casting of tubular articles. The cores are made by a jarring operation so as to dispense largely with the hand work generally employed for making such cores. The apparatus can be adapted to any jarring machine. Another patent issued on the same date to Mr. Berry provides a simple machine for making three-part molds. This is so planned that a few interchangeable parts can be adapted for making the three parts of the mold and in a manner to dispense very considerably with skilled labor, and produce accurate and perfect molds.

886,616. May 5, 1908. Method of Making Bracelets. Philip H. Long, Newark, N. J. The objects of the invention are to enable exceedingly thin stock to be employed and yet a uniformly smooth even bending of the hollow wire or tubing into the form of the bracelet obtained; to secure lightness and a smaller amount of expensive material in a bracelet; and to save labor and produce a perfectly formed bracelet.

TRADE NEWS

TRADE NEWS OF INTEREST DESIRED FROM ALL OF OUR READERS. ADDRESS THE METAL INDUSTRY, 61 BEEKMAN STREET, NEW YORK.

William McConnell has accepted the foremanship of the Plating Department of the Weston Electrical Instrument Company, of Waverly Park, Newark, N. J.

At the Toronto Convention everyone was interested in the Abate chuck, shown by W. L. Abate, the inventor, builder, and master mechanic. Mr. Abate's business address is 76 West Lincoln avenue, Mount Vernon, N. Y.

The Hazard, Coates & Bennett Company, metal producers and dealers, Rochester, N. Y., report that they are holding their own and looking forward to better business conditions. They are ready to supply promptly all kinds of metals.

The American Brass & Specialty Company, of Columbus, O., manufacturers of high grade automobile and boat lamps and brass art metal goods, expect to add new machinery to their plant in order to better keep abreast of their orders.

Contractors have resumed work on the extensions to the Waterbury, Conn., plant of the American Brass Company and the buildings will be pushed to completion as rapidly as possible. It is hoped to occupy them next fall.

The Omaha Plating Company, of 1218 Harney street, Omaha, Neb., contemplate the installation of an up-to-date brass and aluminum foundry, also a spinning department, and would like to hear from firms who can furnish them with the necessary equipment.

Announcement is made by the Standard Roller Bearing Company, of Philadelphia, of the recent installation at its factory of a thoroughly equipped testing laboratory, in charge of Walter H. Hart, an expert chemist, formerly connected with the Alan Wood Iron and Steel Company.

The Essex Metal Novelty Works, 677 Springfield avenue, Newark, N. J., make a large line of composition and iron buckles, and have an extensive plating plant in full operation. Business has been so good with the company during the last few months that it has been decided to increase the plant.

At the recent convention of foundrymen, held in Toronto, Canada, June 8-12, the Seymour Manufacturing Company, of Seymour, Conn., exhibited a large sheet metal sign of 18 per cent. German Silver. The sign measured 30x120 inches, was of .070 gauge and weighed 84 pounds. It was handsomely engraved and polished.

The National Cash Register Company, of Dayton, Ohio, report that they are so busy they have difficulty in finishing their work. They have 65 molders working overtime, enabling them to turn out 13,000 pounds of castings per day, which are not sufficient for their demands. They, therefore, have had to put up an annex to their present foundry that will hold 18 more molders.

On another page the Janitschek Company, Inc., 33 Union Square, New York, call attention to the Janitschek process of casting in gold, silver and bronze, and also to their Patent Process Stamping Dies, which they claim effect large economies. Some examples of casting in bronze and silver by the Janitschek process were illustrated, and the process described, in the May issue of The Metal Industry.

The National Electro Plating Works, of Manchester, Va., is the name of a new company which has recently equipped a plant for doing all kinds of plating, polishing and lacquering. The company is composed of A. E. Grimes, who has had a plating experience of 20 years, W. E. Walters and M. F. Fisher. The company has already had many good sized orders and the prospects for the future are very bright.

W. L. Churchill, 146 Franklin street, Stamford, Conn., is now making a specialty of developing factory efficiency. Mr. Churchill is an expert in increasing the output and reducing the expenses of a factory and is thoroughly familiar with factory management, having held a number of responsible positions. He is also an expert on tinning and galvanizing and is open to engagement for improving this branch of manufacture.

The Foundry Specialty Company, of Cincinnati, Ohio, are the sole manufacturers of "Fluxine," a brass flux which they guarantee will save from 5 to 6 per cent. in melting. "Fluxine" is said to remove the iron from brass and copper, prevent oxidation and produce a homogeneous alloy of great tensile strength, and to do this without injury to the crucible. The company furnishes this material in 50 pound trial packages for the convenience of those who wish to test its qualities.

According to the manufacturers, Nickeloid, which is sheet zinc with a coating of polished nickel alloyed to it, now being used extensively for various purposes where it is necessary to stamp and work the sheet without causing the nickel to peel off and without marring the finish. The American Nickeloid Company, of Peru, Ill., who make this and other kinds of coated metals, state that the cost of producing stamped metal articles of various kinds has been greatly reduced by the use of Nickeloid.

The John C. Culbert Company, Pawtucket, R. I., whose ever ready slogan is "Spot Cash," are again in the market for material. This time it is: 500,000 pounds of red grindings, 500,000 pounds yellow metal grindings, 250,000 pounds scrap copper wire, 5,000 pounds red metal, 5,000 pounds yellow metal, 500,000 pounds red

washings, and 500,000 pounds yellow metal washings. The company would like to hear from any one who has any part or the whole of this material for sale and, as mentioned, they will pay the spot cash.

C. W. Leavitt & Co., 220 Broadway, New York City, have just issued some interesting figures on aluminum magnesium alloys. They say that castings made of an alloy of 92 per cent. pure aluminum and 8 per cent. magnesium has a specific gravity of 2.40 and a tensile strength of from 18,500 to 20,000 pounds per square inch. Other experiments which have been made with the aluminum magnesium alloy are that it is 15 per cent. lighter than the aluminum copper alloy, 33 per cent. stronger, and that it machines 75 per cent. faster. C. W. Leavitt & Co. are headquarters in this country for magnesium.

The business of Herman Blumenthal, manufacturer of brushes, has been reorganized under the name Hermann Blumenthal & Co., with office and factory at 241-243-245 Centre street, New York City. The new firm has taken over the business formerly carried on by E. Mitchell, and with its new facilities is now in a position to furnish any kind of a brush for any purpose, with the exception of paint brushes. One line in which the company will specialize is the manufacture of mounted work for silversmiths. The company invites those interested to submit samples of any brushes on which prices are desired.

The U. S. Dry Galvanizing Company, which formerly had offices at 42 Broadway, New York City, has been reorganized, and the name and address changed to the United States Sherardizing Company, New Castle, Pa. The company was formed to introduce the dry galvanizing or galvanizing process in the United States and now that it has passed into new hands the plan is to push the process. The following are the directors and officers of the new corporation: W. C. Robinson, H. H. Robinson, J. H. Clapp, C. E. Corrigan, J. Morman Martin, C. J. Kirk and H. V. Simpson. C. J. Kirk, president; W. C. Robinson, vice-president; H. H. Robinson, secretary and treasurer. The company was organized under the laws of New Jersey, with a capital of $450,000. The dry galvanizing process was first mentioned in THE METAL INDUSTRY as far back as August, 1904, and the progress since then has been recorded regularly in these columns.

The Rockwell Furnace Company is the name of a new organization recently incorporated, with F. S. Garrett occupying the office of president, and W. S. Quigley, vice-president and general manager. Both of these gentlemen, and most of the other persons interested in, and employed by, the new company, are well known to the metal trades, having been connected for several years with the Rockwell Engineering Company, New York. In a circular letter to the trade the new company declares its intention of maintaining the same standard of excellence in furnace construction set by the old organization. The same letter calls attention to the completeness of the company's line of products, the list including furnaces for almost every conceivable requirement in the metal industry, besides other gas and oil burning appliances and equipment. The headquarters of the new company are at 26 Cortlandt street, New York. The affairs of the Rockwell Engineering Company, of which the new concern is an outgrowth, are being administered by E. F. Tilley, Jr., as trustee for the committee that has been formed by some of the larger creditors for the purpose of protecting their interests.

REMOVALS

Jno. H. Hanson, a plater of Chicago, Ill., has removed from 118 street, to 136 Erie street.

The Art Plating Works, of Chicago, Ill., formerly located at 38 W. Washington street, have removed to 96 W. Lake street.

P. F. Mahoney, a brass founder of Chicago, Ill., formerly located at 39 W. Washington street, has removed to 96 W. Lake street.

H. W. Ellis, a brass founder formerly located at 152 Highland street, Taunton, Mass., has removed to 379 Linden street, Fall River, Mass.

The Manufacturers Equipment Company, of Chicago, Ill., formerly located at 39 W. Washington street, have removed to 23 No. Jefferson street.

The White Brass Casting Company, of Chicago, Ill., formerly located at 227 S. Green street, has removed to the corner of Paulina street and Austin avenue.

The W. H. Stewart Manufacturing Company, manufacturers of founders' core compounds, have moved their offices from 81 Fulton street, New York, to their works at 65 Delevan street, Brooklyn, New York. This change has been made in order to facilitate the handling of their growing business and concentrate their activities at one point. Besides core compounds, etc., the company makes patent lap-seal asphaltic ready roofing, roof paints, sheathing felts, etc.

The New York headquarters of the Metallic Alloys Company have been moved from 99 John street to the new Hudson Terminal Building, 32 Cortlandt street. The company's mines and works are located at Elkton, Va., where they manufacture ferro-manganese, ferro-silicon, and manganese dioxide, the latter for the special use of brass founders.. The treasurer of the company, J. A. Rogers, under whose management the New York office remains, reports having recently made some lage shipments to various brass foundries of manganese dioxide and other brass-founders' specialties which the company furnishes.

FINANCIAL

The Walnut Machine & Brass Foundry Company, of Toledo, O., has increased its capital stock from $10,000 to $25,000.

The certificate filed by the Union Brass Foundry Company, of Haydenville, Mass., gives the following: Buildings valued at $4,000; machinery, $3,500; cash and debts receivable, $4,738; goods manufactured and merchandise, $2,585; horses and wagons, $250; total, $15,073. Capital stock, $10,000; accounts payable, $1,200; profit and loss, $3,873; total, $15,073.

The annual statement of the Haydenville Brass Company, of Haydenville, Mass., shows the following :Real estate, machinery, etc., valued at $45,000; office and fixtures, $1,047; cash and debts receivable, $75,694; manufactured goods and merchandise, $52,432; treasurer's stock, $12,800. Total, $185,973. The capital stock is $75,000; accounts payable, $4,645; floating debt, $58,000; surplus, $48,328; total, $185,973.

The sixth annual report of the International Nickel Company, executive and financial offices at 43 Exchange Place, New York City, has been issued for the fiscal year ended March 31, 1908. The amount of capital stock issued and outstanding is $8,822,661 common stock, and $8,912,626 preferred stock. During the year $1,548,481 was expended for new construction, equipment and replacements. There was provided out of the earnings $215,975 for depreciation of plants, $94,351 for exhaustion of minerals, and $168,250 bond sinking fund. There has also been appropriated from the surplus for further depreciation of properties $300,000. The net profits for the year after deducting expenses, depreciation, exhaustion of minerals, bond sinking fund and all other charges were $1,324,742. Four quarterly dividends on the preferred stock of 1¾ per cent. have been paid during the period.

The report of the Anaconda Copper Company, the principal subsidiary of the Amalgamated, for the year ended

December 31, has been made public. The showing is a large falling off from the year before. Sales of gold, silver, and copper in 1907 totaled $12,038,715, or $8,916,818 less than in 1906. The balance shown was $3,147,773, a falling off of $5,436,396. Dividends paid amounted to $6,300,000, which represented a decline of $600,000 from the previous year. The payment of this sum in dividends, which is nearly $3,000,000 in excess of earnings, left a deficit of $2,921,780, which, deducted from the previous surplus, left a total surplus of $6,261,462. The president's report stated that production figures for March and April show a considerably higher grade of ore and a lower cost per pound of copper than at any time during recent years. The retiring Board of Directors was re-elected, with the exception of W. T. Bull, who was succeeded by Urban H. Broughton.

INCORPORATIONS

In addressing newly formed corporations it is advisable to include the names of the incorporators.

United Metal Casting Company, of Cleveland, O., has been incorporated with a capital of $10,000 by C. F. Ackerman and others.

The American Brass & Specialty Company, of Columbus, O., has been incorporated with a capital of $30,000 by Willis F. Houser, Frank R. Main, Otto O. Walton, G. A. Radford and W. H. Henry.

The Utilities Supply Company, Sixth and Vine streets, Cincinnati, Ohio, is the name of a new incorporation to succeed the firm of Renner & Co., manufacturers of patent specialties in aluminum, etc.

The Comstock Brass Foundry Company, of Cleveland, O., has been incorporated with a capital of $10,000, the incorporators being C. W. Comstock, E. Luetke, H. B. Thornton, C. Zwilling and R. N. Wildman.

The firm of Ph. Bonvillian & E. Ronceray, of Paris, France, builders of molding machines, has been transformed into a limited company under the name of Societe des Etablissements Ph. Bonvillian & E. Ronceray.

The Royal Ink & Bronze Manufacturing Company, of Waterbury, Conn., has been incorporated with a capital of $10,000 to manufacture inks, bronzes, metal powders, and lacquers. The incorporators are George Wright and Adolphe and Henry Schwenterby.

The American Manufacturing Company, of Waterbury, Conn., who will make brass and other metal goods, has filed a certificate of incorporation. The capital of the company is $50,000 and the incorporators are: P. O. Massicotte, Joseph Beaulieu and Richard E. Modrow.

The Screw Machine Products Corporation, of Providence, R. I., has been incorporated with a capital of $100,000 by Arthur C. Steere, Harry M. Mays and George Briggss Jr. The company has been organized for the purpose of buying and selling metal goods of all descriptions.

The Western Foundry & Machine Company, of Ogden, Utah, has been incorporated with a capital of $50,000 to do a general foundry and casting business. The president is John Pingree, A. B. Portor is the vice-president, and J. M. Doran, secretary, treasurer and general manager.

Paterson Metal Stamping Metal Company, of Paterson, N. J., has been incorporated with a capital of $25,000 by Benjamin F. Chase, Frederic Beggs, and William Burpo, all of Paterson. The object of the company is to carry on the business of galvanizing, and copper, nickel and electro plating.

W. J. Savage Company, of Knoxville, Tenn., has been incorporated with a capital of $75,000 to manufacture machinery and machine supplies. The incorporators are W. J. Savage, J. Allen Smith, H. M. Johnston, R. P. Gettys and Charles M. Funck. Formerly this business was conducted by W. J. Savage and Charles M. Funck under the title of W. J. Savage & Company.

Cape Giradeau Smelting & Manufacturing Company, of Cape Giradeau, Mo., has been organized with a capital of $150,000. The plant was built by the Southern Metal & Manufacturing Company, who failed to complete it, and it was sold to the above company. The new company will complete the plant as soon as possible and the principal work will be the smelting of lead and the manufacture of lead pipe. They expect to be in operation within the next 90 days.

PRINTED MATTER

Things Chemical is the title of a booklet published by the Charles E. Sholes Company, 164 Front street, New York City. It contains much matter of interest presented in a most attractive way.

"Reaction" is the title of a quarterly periodical which has been started by the Goldschmidt Thermit Company, of 90 West street, New York City. As stated in the announcement, the paper is not issued to gain publicity, but in order to keep the customers of the company regularly informed of the best and most up-to-date practice. The present issue is well printed and illustrated, and contains many practical examples of welding by this process.

"Because." When we see this word in print we very naturally expect something to follow, and this something we suppose will give the reason for the "because." We find this particular "because" is employed to introduce many statements tending to prove the superior merits of the lacquers made by G. J. Nikolas & Company, of 400-2 Van Buren street, Chicago, Ill. It would be well for those interested in lacquers to send for a copy of this pamphlet.

Pyrometers. Owing to the great number of different types of pyrometers which Edward Brown & Son, of 311 Walnut street, Philadelphia, Pa., are now selling, they have found it necessary to publish a catalogue in order that their customers may understand the advantages of each type of instrument and be able to decide which will best suit their requirements. The company now have portable pyrometers, stationary pyrometers for continual use and recording pyrometers which continually record the temperature.

Wire Mill Equipment for steel, brass, copper and bronze is very fully described in catalogues by the Morgan Construction Company, of Worcester, Mass. The machinery mentioned includes drawing frames, muffle and pot annealers, dry houses, cleaning cranes, cleaning vats, galvanizing equipment, mill trucks, pointers, reels, die reaming lathes, etc. The above may be considered as merely typical of their general line of product, since the company are constantly making changes and improvements, both to meet new demands of the trade and to secure better mechanical efficiency.

Colonial Hardware is the title of a very neat pamphlet issued by the Russell & Erwin Manufacturing Company, of New Britain, Conn. This illustrates many patterns of hardware, which is now so much in demand owing to the appreciation of the colonial style of architecture. Many of the patterns illustrated are direct copies from veritable antiques and others are designed upon lines in harmony with the architecture of the Georgian period. The beauty of the old work has been recognized and there is every reason to believe that this style has been established in lasting favor.

"Fluxine" is the title of a pamphlet just issued by the Foundry Specialty Company, of Cincinnati, O. This is a universal metal cleaner and is stated to be the only successful agent for the removal of iron, oxides, silicates and other undesirable im-

purities in the metal. It not only removes the oxides, but protects the metal in the most effective manner against further oxidation. It makes the metal perfectly clean and produces that homogeneous fluidity so highly appreciated by the progressive foundryman. "Fluxine" is practically infusible, and it forms over the metal a dense cover, thereby guarding against atmospheric influences of an injurious nature.

FOUNDRY SPECIALTIES.—Stanley Doggett, 101 Beekman street, New York City, has issued a catalogue of the various products manufactured and sold by him under the trade-mark "FILL-IT." The catalogue contains instructions for using these products in the foundry in repairing and filling blow or sand holes or any other defects, fractures or indentations in iron or steel castings. It is claimed that "FILL-IT" Iron Cement, when mixed with water, forms a plastic compound which will metallize in a few hours, and that when applied to the casting it becomes virtually a part of it, expands and contracts with the iron, and can be filed or polished like any other part of the casting.

CATALOG BUREAU

We have established a Catalog Bureau and are prepared to do all the work necessary for the making of catalogs, pamphlets, circulars and other printed matter. Estimates will be furnished for writing descriptions, making engravings, printing, binding—in fact for the entire job from beginning to end or any part of it. Let us know your needs and we will tell you exactly what we can do and what it will cost you.

DAILY METAL PRICES

We have made arrangements with the New York Metal Exchange by which we can furnish our readers with the Official Daily Metal Market Report of the Exchange and a year's subscription to THE METAL INDUSTRY for the sum of $10. The price of the Report alone is $10. We can also furnish daily mill and factory reports covering all the news of mills, factories and machine shops to be built. Send for particulars.

ANALYZING AND TESTING BUREAU

THE METAL INDUSTRY is independent of all laboratories, but we offer our services in directing our readers where they can get metals, materials and supplies analyzed and tested to the best advantage. We have an intimate knowledge of the best laboratories in the country and know the specialties of the different ones. Cost furnished on receipt of sample.

AD. WRITING

This department prepares advertising copy and makes cuts, photos or drawings. Our experience, and what skill we may have in ad. writing, are at your disposal at all times and as often as you may desire without cost to you. If it is a task for you to get ready your advertisements, send to THE METAL INDUSTRY.

INFORMATION BUREAU

Any concern intending to buy metals, machinery and supplies and desiring the names of the various manufacturers and sellers of these products can obtain this information by writing to THE METAL INDUSTRY. Our Information Bureau is for the purpose of answering questions of all kinds.

PATENT BUREAU

Any of our readers intending to take out patents or trade marks can learn of reliable attorneys who will look after their interests to best advantage by simply writing to THE METAL INDUSTRY.

SITUATION BUREAU

We have established a Want Ad. Situation Bureau whereby the situation hunter and employer are put in prompt communication with each other.

OFFICE HEADQUARTERS

When visiting New York the out-of-town friends of THE METAL INDUSTRY are invited to make our office their headquarters where writing desks and telephone service will be at their disposal. Every one interested in the non-ferrous metals is invited to call. THE METAL INDUSTRY, 61 Beekman Street, New York.

METAL MARKET REVIEW

New York, June 4, 1908.

COPPER.—We have to report the market quiet for the month of May. The disposition on part of consumers and speculators, apparently, is to hold off for the present. The undertone of the market seems strong, and the indications favor a more active business, when it is hoped prices will at least show some advance. In New York the average prices for the month were as follows: Lake, 12.76; Electrolytic, 12.62½; Casting, 12.40. Exports for the five months of this year, show an increase of 67,828 tons, compared with the same period of last year. In London prices opened for the month at £57 2s. 6d Highest, £59; lowest, £56 12s. 6d., closing £57 12s.

TIN.—The volume of business being transacted during the month of May shows an increase over the month of April, but prices have fluctuated considerably, and close lower. Sales reported for consumption to about 4,000 tons. The total for 5 months show a decrease of 2,550 tons compared with the same time last year. Shipments from the straits for May were 187 tons larger for the same month of last year. For the five months of this year the increase in shipments amounts to 3,277 tons more than same time last year. The total visible supply on May 31, 1908, is 3,409 tons above that of May 31, 1907.

LEAD.—The demand during the month of May shows a decided improvement. Prices opened strong, and at the close was higher with indications favoring a further advance. We have to report a good business doing. St. Louis prices were as follows: In London, opening, £13 2s. 6d.; highest, £13 5s 6d.; lowest, £12 13s. 9d.; closing, £12 15s. Arrivals at Atlantic ports by steamer: From Mexico about 5,500 tons; from Europe about 140 tons.

SPELTER.—Business during the month of May was very quiet; shipments to Europe during the month, 29 tons spelter, and 2,250 tons zinc ore.

ANTIMONY.—There is apparently no change in the market, which continues very quiet. We would quote Cooksons at $8.75 to $9.00; Hallets at $8.25 to $8.50; other brands, $8.00 to $8.25. Demand light, apparently, for immediate requirements.

ALUMINUM.—The demand is by no means active, but prices are well sustained as follows in ton lots: No. 1, pure ingot, 33c. per pound; rods and wire, 38c. per pound; sheets, 40c. per pound.

SILVER.—There is no change. London quotations, 24¼d. per ounce; New York official quotation 52⅝c.

OLD METALS.—The market is decidedly quiet.

THE MAY MOVEMENTS IN METALS

	Highest.	Lowest.	Average.
COPPER—			
Lake	13.50	12.50	12.75
Electrolytic	13.00	12.50	12.70
Casting	12.75	12.00	12.50
TIN	31.75	28.25	28.75
LEAD	4.37½	4.07½	4.26
SPELTER	4.62½	4.57½	4.59¾
ANTIMONY (Halletts)	8.75	8.50	8.65

See Advertising Pages 23 and 24 Following for Trade Wants

Metal Prices, June 15, 1908

NEW METALS.

	Price per lb.
COPPER, PIG, BAR AND INGOT AND OLD COPPER. Duty Free. Manufactured 2½c. per lb.	
Lake, car load lots	12.76
Electrolytic, car load lots	12.62½
Castings, car load lots	12.40
TIN—Duty Free.	
Straits of Malacca, car load lots	29.98½
LEAD—Duty Pigs, Bars and Old 2½c. per lb., pipe and sheets 2½c. per lb.	
Pig lead, car load lots	4.26
SPELTER—Duty 1½c. per lb.	
Western, car load lots	4.59¾
ALUMINUM—Duty Crude, 8c. per lb. Plates, sheets, bars and rods 13c. per lb.	
Small lots	35.00
100 lb. lots	34.00
Ton lots	33.00
ANTIMONY—Duty ¾c. per lb.	
Cookson's, cask lots, nominal	8.75
Halletts, cask lots	8.50
Other, cask lots	7.75
NICKEL—Duty 6c. per lb.	
Shot, Plaquettes, Ingots, Blocks, according to quantity	.45 to .60
MANGANESE—Duty 20%	.80
MAGNESIUM—Duty Free	$1.40
BISMUTH—Duty Free	1.80
CADMIUM—Duty Free	1.40
	Price per oz.
GOLD—Duty Free	$20.67
SILVER—Duty Free	.52½
PLATINUM—Duty Free	22.25
QUICKSILVER—Duty 7c. per lb. Price per pound	61c. to 62c.

OLD METALS.

	Price per lb.	
Heavy Cut Copper	10.50	11.00
Copper Wire	10.00	10.50
Light Copper	9.00	9.50
Heavy Mach. Comp.	10.00	10.50
Heavy Brass	8.00	8.50
Light Brass	6.00	6.25
No. 1 Yellow Brass Turnings	7.00	7.50
No. 1 Comp. Turnings	8.00	8.50
Heavy Lead	3.50	3.60
Zinc Scrap	3.00	3.50
Scrap Aluminum, turnings	6.50	7.00
Scrap Aluminum, cast, alloyed	16.00	18.00
Scrap Aluminum, sheet (new)	18.00	19.00
Old Nickel, solid	20.00	23.00
No. 1 Pewter	18.00	19.00

INGOT METALS.

		Price per lb.
Silicon Copper	according to quantity	33 to 38
Phosphor Copper, 5%	" "	19 to 21
Phosphor Copper, 10% to 15% Guaranteed	" "	28 to 30
Phosphor Tin	" "	34 to 36
Brass Ingot, Yellow	" "	10 to 11
Brass Ingot, Red	" "	12 to 14
Bronze Ingot	" "	11 to 13
Manganese Bronze	" "	14 to 17
Phosphor Bronze	" "	13 to 16
Casting Aluminum Alloys	" "	29 to 35

PHOSPHORUS—Duty 18c. per lb.
According to quantity ..... 30 to 40

PRICES OF HOT ROLLED SHEET COPPER.

	SIZES OF SHEETS.	64 oz. and over 50 lb. sheet 30 x 60 and heavier.	32 oz. to 64 oz. 25 to 50 lbs. sheet 30 x 60.	24 oz. to 32 oz. 18¾ to 25 lb. sheet 30 x 60.	16 oz. to 24 oz. 12½ to 18¾ lb. sheet 30 x 60.	14 oz. and 15 oz. 11 to 12½ lb. sheet 30 x 60.	12 oz. and 13 oz. 9½ to 11 lb. sheet 30 x 60.	10 oz. and 11 oz. 7¾ to 9½ lb. sheet 30 x 60.	8 oz. and 9 oz. 6¼ to 7¾ lb. sheet 30 x 60.	Lighter than 8 oz.
		CENTS PER POUND.								
Not wider than 30 ins.	Not longer than 72 inches.	17	17	17	17	18	19	20	23	26
	Longer than 72 inches. Not longer than 96 inches.	17	17	17	17	18	20	23	26	
	Longer than 96 inches.	17	17	17	17	19	23			
Wider than 30 ins. but not wider than 36 inches.	Not longer than 72 inches.	17	17	17	17	19	21	24	27	
	Longer than 72 inches. Not longer than 96 inches.	17	17	17	17	19	23	26		
	Longer than 96 inches. Not longer than 120 inches.	17	17	17	18	20				
	Longer than 120 inches.	17	17	18	19					
Wider than 36 ins. but not wider than 48 inches.	Not longer than 72 inches.	17	17	18	19	21	24	27		
	Longer than 72 inches. Not longer than 96 inches.	17	17	18	20	22	25			
	Longer than 96 inches. Not longer than 120 inches.	17	17	19	21	25				
	Longer than 120 inches.	17	18	20	23					
Wider than 48 ins. but not wider than 60 inches.	Not longer than 72 inches.	17	17	18	20	23	28			
	Longer than 72 inches. Not longer than 96 inches.	17	17	19	21	26				
	Longer than 96 inches. Not longer than 120 inches.	17	18	20	23					
	Longer than 120 inches.	18	19	21	25					
Wider than 60 ins. but not wider than 72 ins.	Not longer than 96 inches.	17	18	20	25					
	Longer than 96 inches. Not longer than 120 inches.	17	19	22	27					
	Longer than 120 inches.	18	20	25						
Wider than 72 ins. but not wider than 108 ins.	Not longer than 96 inches.	18	20	23						
	Longer than 96 inches. Not longer than 120 inches.	19	21	24						
	Longer than 120 inches.	20	22	26						
Wider than 108 ins.	Not longer than 132 inches.	21	23							
	Longer than 132 inches	22	25							

Rolled Round Copper, ⅝ inch diameter or over 17 cents per pound. (Cold Drawn, Square and Special Shapes, extra.)

Circles, Segments and Pattern Sheets three (3) cents per pound advance over prices of Sheet Copper required to cut them from.

All Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, one (1) cent per pound over the foregoing prices.

All Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, two (2) cents per pound over the foregoing prices.

Cold Rolled and Annealed Copper, Sheets and Circles, take the same price as Cold or Hard Rolled Copper of corresponding dimensions and thickness.

All Polished Copper, 20 inches wide and under, one (1) cent per pound advance over the price for Cold Rolled Copper.

All Polished Copper, 20 inches wide, two (2) cents per pound advance over the price for Cold Rolled Copper.

Planished Copper, one (1) cent per pound more than Polished Copper.

Cold RoHed Copper prepared suitable for polishing, same prices and extras as Polished Copper.

Tinning Sheets, on one side, 3½c. per square foot.

For tinning both sides, double the above price.

For tinning the edge of sheets, one or both sides, price shall be the same as for tinning all of one side of the specified sheet.

COPPER BOTTOMS, PITS AND FLATS.

14 oz. to square foot and heavier, per lb.	21c.
12 oz. and up to 14 oz. to square foot, per lb.	22c.
10 oz. and up to 12 oz.	24c.
Lighter than 10 oz.	27c.

Circles less than 8 in. dia., 2c. per lb. additional.

Circles over 13 in. dia. are not classed as Copper Bottoms.

Polished Copper Bottoms and Flats, 1c. per lb. extra.

ZINC—Duty, sheet, 2c. per lb.

	Price per lb.
600 lb. casks	7.00 less 8%
Open casks	8.50

Metal Prices, June 15, 1908

PRICES ON BRASS MATERIAL—MILL SHIPMENTS.

In effect May 4, 1908, and until further notice.

To customers who purchase less than 40,000 lbs. per year and over 5,000 lbs. per year.

	Net base per lb. High Brass.	Low Brass.	Bronze.
Sheet	$0.13½	$0.15⅝	$0.17⅝
Wire ¼" and larger	.13¾	.15⅞	.17⅞
Wire smaller than ¼" to No. 8 inclusive.	.14½	.16⅝	.18⅝
Wire smaller than No. 8 to No. 10 inclusive	.15	.17⅛	.18⅞
Rods ¼" and larger to ½" diameter	.14	.16⅛	.18⅛
Rods ⅛" to 1" diameter, both inclusive	.13¾	.15⅞	.18⅝
Brazed tubing	.20	—	.22⅝
Open seam tubing	.18	—	.20⅝
Angle and channel, plain	.20	—	.23⅝

30% discount from all extras except for quality.

NET EXTRAS FOR QUALITY.

Sheet—Extra spring, drawing and spinning brass	½c. per lb. net advance.
" —Best spring, drawing and spinning brass	1½c. " " " "
Wire—Extra spring and brazing wire	½c. " " " "
" —Best spring and brazing brass wire	1c. " " " "

To customers who purchase less than 5,000 lbs. per year.

	Net base per lb. High Brass.	Low Brass.	Bronze.
Sheet	$0.14½	$0.16⅝	$0.18⅝
Wire, ¼" and larger	.14¾	.16⅞	.18⅝
Wire, smaller than ¼" to No. 8 inclusive	.15½	.17⅝	.19⅝
Wire, smaller than No. 8 to No. 10 inclusive	.16	.18⅛	.19⅞
Rods, ¼" and larger to ½" diameter	.15	.17⅛	.19⅞
Rods, ⅛" to 1" diameter, both inclusive	.14¾	.16⅞	.19⅝
Brazed tubing	.21	—	.23⅝
Open seam tubing	.19	—	.21⅝
Angle and channel, plain	.21	—	.24⅝

5% discount from all extras except for quality.

NET EXTRAS FOR QUALITY.

Same as above.

BARE COPPER WIRE—CARLOAD LOTS.

14⅝c. per lb. base.

SOLDERING COPPERS.

300 lbs. and over in one order	17c. per lb. base
100 lbs. to 300 lbs. in one order	17½c. " " "
Less than 100 lbs. in one order	19c. " " "

PRICES FOR SEAMLESS BRASS TUBING.

From 1⅛ to 3½ in. O. D. Nos. 4 to 13 Stubs' Gauge, 18c. per lb.
Seamless Copper Tubing, 21c. per lb.

For other sizes see Manufacturers' List.

PRICES FOR SEAMLESS BRASS TUBING Iron Pipe Sizes.

Iron Pipe Size.	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price per lb.	26	25	20	19	18	18	18	18	18	18	18	19	20	22	24	25

PRICE LIST OF IRON LINED TUBING—NOT POLISHED.

	Per 100 feet. Brass.	Bronze.
⅜ inch	$8	$9
½ inch	8	9
⅝ inch	10	11
¾ inch	12	13
⅞ inch	14	15
1 inch	18	20
1¼ inch	22	24
1¼ inch	25	27
1½ inch	32	35
1¾ inch	45	48
2 inch	56	60

Discount 45 and 5%.

PRICES FOR MUNTZ METAL AND TOBIN BRONZE.

Muntz or Yellow Metal Sheathing (14" x 48")	14c. lb. net base
" " " Rectangular Sheets other than Sheathing	16c. " " "
" " " Rod	15c. " " "
Tobin Bronze Rod	17c. " " "

Above are for 100 lbs. or more in one order.

PLATERS' METALS.

Platers' bars in the rough, 22⅝c. net.

German silver platers' bars dependent on the percentage of nickel, quantity and general character of the order.

Platers' metal, so called, is very thin metal not made by the larger mills and for which prices are quoted on application to the manufacturers.

PRICES FOR SHEET BLOCK TIN AND BRITANNIA METAL.

Not over 18 in. in width, not thinner than 23 B. S. Gauge, 4c. above price of pig tin in same quality.

Not over 35 in. in width, not thinner than 22 B. S. Gauge, 5c. above price of pig tin.

PRICE LIST FOR SHEET ALUMINUM—B. & S. Gauge.

Wider than..... and including.....	3in. 12in. in coils.	6in. 14in.	14in. 16in.	16in. 18in.	18in. 20in.	20in. 24in.	24in. 30in.	30in. 36in.	36in. 40in.
No. 13 and heavier	40	40	42	42	42	42	45	45	45
" 14	40	40	42	42	42	42	45	45	45
" 15	40	40	42	42	42	42	45	45	45
" 16	40	40	42	42	42	42	45	45	45
" 17	40	40	42	42	42	42	45	45	45
" 18	40	40	42	42	42	42	45	45	45
" 19	40	40	42	42	42	42	45	46	49
" 20	40	42	42	42	42	44	47	48	50
" 21	40	44	44	44	44	46	49	50	56
" 22	40	44	44	44	46	46	49	53	57
" 23	40	44	44	44	46	46	49	55	58
" 24	40	44	46	48	48	48	51	57	60
" 25	42	45	47	49	49	49	52	59	63
" 26	42	45	48	52	52	52	57	61	67
" 27	42	46	50	54	54	55	60	64	70
" 28	42	46	52	54	55	55	62	68	73
" 29	44	47	54	56	58	58	67	73	78
" 30	44	48	56	58	62	68	76	78	83
" 31	49	53	61	64	69	77	80	83	89
" 32	51	55	63	67	75	83	90	96	101
" 33	53	57	66	71	79	90	97	106	116
" 34	56	61	68	76	84	97	109	116	126
" 35	..	71	76	86	96	106	121	131	..
" 36	..	86	96	106	121	126	141	..	..
" 37	..	110	114	135	150	165	180	..	..
" 38	..	130	145	160	175	190	210	..	..
" 39	..	150	170	190	210	230	..	..	..
" 40	..	180	210	230	250	..	..	..	..

In flat rolled sheets the above prices refer to lengths between 2 and 8 feet. Prices furnished by the manufacturers for wider and narrower sheet. All columns except the first refer to flat rolled sheet. Prices are for 50 lbs. or more at one time. Less quantities 5c. lb. extra. Charges made for boxing.

PRICE LIST OF SEAMLESS ALUMINUM TUBING.

Stubs' G. B. & S. G.	1⅛"	1⅛"	1¼"	2"	2¼"	2½"	2¾"	3"	3¼"	3½"	3¾"	4"	4¼"	4½"
4 to 11	3 to 9	BASE PRICE 50 CENTS.										3	3	3	10
12	10											6	6	6	13
13	11											10	10	10	16
14	12	3	3	3	3	3	3	3	3	3	3	13	13	13	19
15	13	3	3	3	3	3	3	3	3	3	3	19	19	19	22
16	14	6	6	6	6	6	6	6	6	6	16	19	22	25	35
17	15	10	10	10	10	10	10	10	10	16	19	22	25	29	38
18	16	13	13	13	13	13	13	19	22	25	29	32	32	44
19	17	16	16	16	16	16	22	25	29	32	35	41	48	54
20	18-19	19	19	19	19	19	22	22	25	29	35	35	41	60	60
21	20	22	22	22	22	..	..	..	..	..	..	..	..	..	..
22	21	25	25	25	25	..	..	..	..	..	..	..	..	..	..
23	22	35	35	35	41	48	..	..	..	..	..	..	..	..	..
24	23	57	60	60	63	67	..	..	..	..	..	..	..	..	..
25	24	73	76	..	..	..	..	..	..	..	..	..	..	..	..

Prices are for ten pounds or more at a time. For prices on smaller sizes send for manufacturers' list.

PRICE LIST FOR ALUMINUM ROD AND WIRE.

Diameter. B. & S. G'ge.	000 to No. 10.	No. 11.	No. 12.	No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.	No. 19.	No. 20.	No. 21.	No. 22.
Price, per lb.	38	38½	38½	39	39½	40	40½	41	42	43	44	47	52

200 lbs. to 30,000 lbs., 3 cents off list; 30,000 lbs. and over, 4 cents off list.

PRICE LIST FOR GERMAN SILVER IN SHEETS AND ROLLS.

Per cent.	Price per lb.	Per cent.	Price per lb.
12	$0.52	16	$0.58
13	.53	17	.59
14	.54	18	.60
15	.55		

These prices are for sheets and rolls over 2 inches in width, to and including 8 inches in width and to No. 20, inclusive, American or Brown & Sharpe's Gauge. Prices are for 100 lbs. or more of one size and gauge in one order. Discount 50%.

GERMAN SILVER TUBING.

4	per cent.	to No.	19, B. & S. Gauge, inclusive		$0.60
6	"	"	19, " " "		.70
9	"	"	19, " " "		.85
12	"	"	19, " " "		1.00
15	"	"	19, " " "		1.15
16	"	"	19, " " "		1.20
18	"	"	19, " " "		1.30

German Silver Tubing thinner than No. 19 B. & S. Gauge add same advances as for Brazed Brass Tube.

For cutting to special lengths add same advances as for Brazed Brass Tube. Discount 40%.

PRICE OF SHEET SILVER.

Rolled sterling silver .925 fine is sold according to gauge quantity and market conditions. No fixed quotations can be given as prices range from 2c. below to 6c. above the price of bullion.

Rolled silver anodes .999 fine are quoted at 2c. above the price of bullion.

TRADE WANTS

AN EXCHANGE FOR THE WANTS OF THE METAL TRADES.

Advertisements will be inserted under this head at 40 cents per line, 3 lines one dollar, for each insertion, excepting Situations Wanted, 20 cents per line, 3 lines half a dollar. Answers sent in our care will be forwarded.

METALS, MACHINERY AND SUPPLIES FOR SALE

FOR SALE—AT BARGAIN RATES

ROLLING MILLS, POLISHING HEADS and all kinds of machinery required by SILVERSMITHS and MANUFACTURERS JEWELERS. We carry a general line and render prompt shipment.

THOMAS McWILLIAMS, 237 Eddy Street, PROVIDENCE, R. I.

We have for sale a

SECOND HAND PLATING DYNAMO

on account of same being too small for our work:

One 6 volt Card Machine rated at 700 amperes, cost $350.00, new, 8 years ago **for sale at $80.00**

F. O. B. PERU, ILL.

AMERICAN NICKELOID & MFG. CO., - Peru, Ill.

FOR SALE—A complete set of MOULDS for the making of Siphons for seltzer bottles. Will sell cheap. Address J-13, care THE METAL INDUSTRY.

FOR SALE.—1 Phoenix Plating Dynamo, 6 volts, 3,000 amperes. 1 Phoenix Plating Dynamo, 5 volts, 1,500 amperes. Address Box W., care THE METAL INDUSTRY.

FOR SALE—POLISHING AND PLATING OUTFIT COMPLETE. For particulars address DELAWARE PLATING COMPANY, 517 East Third street, Wilmington, Del.

FOR SALE—BRASS FOUNDRY IN GOOD LOCATION. Has a steady run of orders. Good chance for practical man. Address F-1, care THE METAL INDUSTRY.

FOR SALE—AT A SACRIFICE, A BRICK FOUNDRY FACTORY with all of the machinery for smelting. Located at Utica, N. Y. For further information inquire of SAMUEL ELLIS, 322 Canal street, New York City.

FOR SALE—A lot of new SHEET BRASS and ALUMINUM at a bargain. WALSH'S SONS & CO., Newark, N. J.

FOR SALE—IMPROVED DRILL CHUCKS that are needed in every METAL WORKING SHOP. Address DRILL CHUCK, care THE METAL INDUSTRY.

FOR SALE—LATHES and DRILL CHUCKS, Face Plate Jaws, Centering Chucks, Planer Chucks, etc. Immediate shipment guaranteed. Address LATHE CHUCK, care THE METAL INDUSTRY.

FOR SALE.—Prompt Shipment. DROP PRESSES and AUTOMATIC DROP LIFTER to suit all requirements. Address DROP, care THE METAL INDUSTRY.

WANTED—A second hand 14 POT FURNACE. Address BOX A-6, care THE METAL INDUSTRY.

METALS, MACHINERY AND SUPPLIES WANTED

WANTED

We expect to employ a number of melting furnaces in our new plant for the manufacture of

BABBITT METAL, BRASS, ETC.,

and would like to hear from firms selling this equipment. **Address J-5, care THE METAL INDUSTRY**

WANTED

50,000 lbs. Ingot Copper, Heavy Copper and Composition

Quote lowest cash price. 75 per cent. against Bill of Lading and balance after examination of stock.

Address A—4, care of THE METAL INDUSTRY

We PAY CASH for GOLD, SILVER and PLATINUM SCRAPS, SOLUTIONS and SWEEPINGS; Old Nickel Anodes, New or Old Mercury, Bismuth, Gas Mantle Dust and Chemicals, etc. EMPIRE CHEMICAL WORKS, 416 East 52d street, New York City.

CASH PAID for old precious metals and minerals in any form. Gas mantle dust, bronze powder, bismuth, platinum, mercury, nickel, etc. Address JOSEF RANDAL, 36 Fulton street, New York City.

WANTED—METALS and WASTE of all kinds. Address WALSH'S SONS & CO., Newark, N. J.

OPPORTUNITIES

WANTED

To manufacture articles which pertain to foundry practice and which combine new ideas for reducing foundry cost of operation. We will manufacture and allow satisfactory royalty.

Address J-2, care THE METAL INDUSTRY

PRACTICAL INFORMATION on starting a brass foundry. Also if you have any trouble in your brass foundry you want righted, I have had 23 years' practical experience and can put you right. If not you need not pay for my services. Let me know what you want to know or I will come and tell you. A. H. A., care THE METAL INDUSTRY.

WANTED—Concerns handling Platers' and Publishers' Supplies to represent a large manufacturing concern of ALKALIS. Address with full particulars, territories covered and number of men selling goods. Address ALKALI, F-7, care THE METAL INDUSTRY.

J. P. FANNING, Machinist, 78 Jefferson Avenue, Brooklyn, N. Y.—Maker of Moulds for Casting Solder, Babbitt Metal, Bar Lead, etc. We also manufacture small work. Write for particulars.

WANTED—Reliable parties to canvass for subscriptions to THE METAL INDUSTRY. Liberal commission. For further particulars address THE METAL INDUSTRY, 61 Beekman street, New York.

GOOD SALES, GOOD EQUIPMENT, GOOD ASSISTANTS and GOOD POSITIONS may be obtained by the insertion of a METAL INDUSTRY WANT.

INQUIRIES

Inquiries received by THE METAL INDUSTRY for Metals, Machinery and Supplies. Further particulars may be obtained by addressing the inquiry number, care THE METAL INDUSTRY.

Inquiry No. 9.—Would like to hear from firms making ladies' fancy belt buckles in unfinished order.

Inquiry No. 10.—Would like to correspond with makers of square tin tubing used by casket handle manufacturers.

Inquiry No. 11.—Would like to correspond with manufacturers of a machine for casting white metal, either by hydraulic or air compressure.

Inquiry No. 12.—Would like to correspond with manufacturers of machinery for grinding and machining gas cocks.

Inquiry No. 13.—Would like to correspond with manufacturers of a small testing furnace, operated with gas as a fuel, also a small water motor to force the blast.

Inquiry No. 14.—Would like to correspond with sheet aluminum novelty manufacturers.

Inquiry No. 15.—We are in the market for knife ferrules, both fancy and plain, sterling silver and cheaper qualities.

Inquiry No. 16.—Would like to correspond with manufacturers of wire solder.

Inquiry No. 17.—We are in the market for some rolls weighing 4 or 5 pounds, to be cast of nickel steel.

Inquiry No. 18.—We are in the market for some German silver 5/16" or ⅜" round.

Inquiry No. 19.—We are in the market for sheet britannia for the manufacture of silverware.

SITUATIONS OPEN

WANTED—A Working Foreman for Plating Room. We manufacture builders' hardware and the man to fill the position for us would require to be thoroughly competent to take full charge, and produce any desired finish. Address J-4, care THE METAL INDUSTRY.

WANTED—SUPERINTENDENT for heavy wire works. Must be thoroughly capable man, experienced in handling men. Fine situation to the right man. Address J-3, care THE METAL INDUSTRY.

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Advertisements will be inserted under this head at 40 cents per line, 3 lines one dollar, for each insertion, excepting Situations Wanted, 20 cents per line, 3 lines half a dollar. Answers sent in our care will be forwarded.

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SITUATION WANTED—By a plater of 37. Capable of taking charge. Very good on Ormolu Gold, metal coloring, brass and nickel solutions. Would like to make a change. Address J-12, care THE METAL INDUSTRY.

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SITUATION WANTED—By a Plater, Polisher and Buffer. First-class all around man. Expert in all solutions and finishes, silver deposit, galvana plastic, cold galvanizing. Eighteen years' experience in Electro Metallurgy. Address J-10, care THE METAL INDUSTRY.

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SITUATION WANTED—By a Foreman Plater who is capable of taking charge. Thoroughly familiar with all finishes and can furnish the best of references. Address J-6, care THE METAL INDUSTRY.

SITUATION WANTED.—Position as DESIGNER with ELECTRIC FIXTURE MANUFACTURERS. Had also had practical experience in erecting fixtures. I. C. S., Student. Address J-14 care of THE METAL INDUSTRY.

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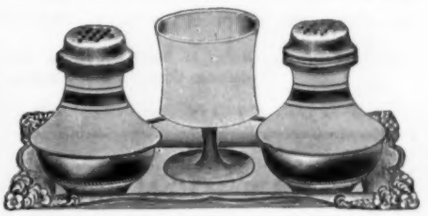

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